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MACFORMAT

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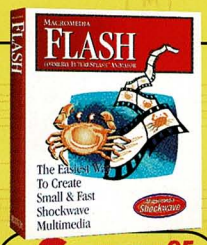

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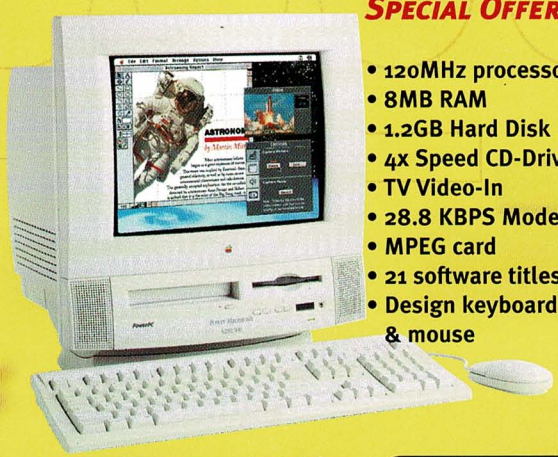

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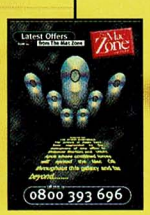

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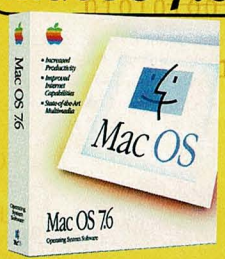

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Welcome to

Celebrate a double anniversary with us as Apple turns 21 and MACFORMAT reaches its 50th issue...

Brand recognition? I'll tell you about brand recognition: my four-year-old son knows that Apple makes computers. That's brand recognition for you.

It was the day I had been to interview Apple UK's General Manager, Jon Molyneux. (And very revealing it was too – see for yourself on page 40.) When my son asked where I had been that day, I said I'd been to a place called Apple – just that. He thought for just a moment and shot back: "Did they have 'puters?"

Okay, he's my son, and I work on a Mac every day. But he spotted that distinctive, appealing Apple logo for himself and made the connection without my explaining it.

It's no wonder then that Apple comes in at number 18 on a list of "the world's top 100 brands" compiled by a firm called Interbrand.

As it happens, Microsoft and IBM both rank higher, along with Disney, Sony, Kodak and Marlboro, and both Colas, Coca and Pepsi. Top of the list is... McDonald's. My son recognises that too, though he does call it "Donald's Happy Meal". Just shows you how much is down to advertising. But advertising can't be the whole story: Intel comes in at number 27 – nine places below Apple – and you know how much more advertising it's been doing than Apple.

What's most significant is that Interbrand ranks Apple number one in "brand depth" – a measure of customers' feeling of commitment, intimacy and loyalty to the brand. Apple commands unheard-of loyalty among the users of its machines – no less than 86% say they'd buy another Mac. The next five on the list are Disney, Body Shop, Harley-Davidson, the BBC and Mercedes-Benz.

What do these brands have in common? I think it's this: they are all perceived as standing for something. They all evoke some set of values, beliefs or standards that customers buy into – and with that emotional investment, it's no surprise that people get emotional if they think the company itself isn't being true to those values (I'm thinking here mainly of the BBC; the others, especially the first two, are very careful to protect their image).

So let's celebrate not just the image but Apple's values, its brilliance and its achievements over the last 21 years. As it experiences another of its periodic painful restructurings, let's hope it preserves the vision behind "the computer that changed everything": innovation, excellence, ease of use.

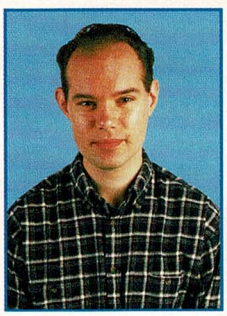
You see, when he grows up, I want my son to be able to use an Apple computer as "insanely great" and as enjoyable as my Mac. After all, every parent wants the best for his children... even if all they want just now is a Donald's Happy Meal.

Alex

About MACFORMAT

Welcome to MACFORMAT, Britain's best-selling Macintosh magazine. Our first issue (that's it on the left) appeared in early 1993, around the time that Apple sold its 10-millionth Mac. A few months earlier, Apple had brought out the first Performas, establishing the Mac as a machine for all compu-

Meet the MF team...



Richard Hill

Our Deputy Editor joined MACFORMAT as Staff Writer way back in issue 16, around August 1994, with a background in training and radio journalism – just the thing for explaining all this new-fangled technology stuff in intelligible terms. Since then, he's become a multimedia personality again, with an appearance answering people's queries on the Computer Channel, but to us he's still our resident news guru and human telephone index.

Derek Smith

Our technical expert joined MACFORMAT in issue 14 in July 1994 as Disc Editor *and* Technical Writer. Back then, of course, it was possible for one person (er, dinosaur) to do both jobs, because CD-ROM had only just been invented and at last we could include all the great stuff we'd never had room for on a floppy. Or maybe it wasn't so easy: Derek jumped ship at the end of 1995 and now works in Future's computer services department. And no, he isn't camera-shy. He really *is* a small green stuffed dinosaur.

A word about prices...

We try to ensure that all prices quoted in editorial pages in MACFORMAT are accurate at the time of going to press, and they all *include* UK Value Added Tax at 17.5%. However, this may not necessarily be the case with prices appearing in advertisements, so we recommend that you always contact advertisers before ordering to confirm prices and availability.

■ We make every effort to verify all the information we publish, but products and prices do change. We always quote list prices (RRPs), but street prices vary. Shop around, and check with the supplier before buying to make sure that the product you're considering will meet your needs. MACFORMAT cannot accept responsibility for any errors or omissions or for any losses that may

MACFORMAT

ter users, not just professionals working in DTP or graphics.

Accordingly, MACFORMAT covers the whole range of Mac applications, from graphics to games, databases to DTP, multimedia to music. It is the only UK Mac magazine for *all* hands-on users. Every issue, we bring you:

■ **Features** about exciting Mac developments and novel uses, accompanied by software on our Cover CD whenever possible, so you can discover what your machine can do and try things you mightn't have tried before.

■ The latest Mac-related **news**, plus the background information you need to make sense of it all.

■ Practical step-by-step **how-to's** to help you learn how to get more from your software.

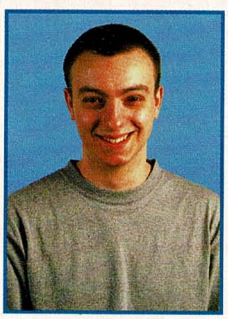
■ Authoritative, independent **reviews** of interesting and affordable products, with clear buying recommendations. MACFORMAT never just reprints reviews from overseas magazines, and uniquely, we review *only* finished products – the products you can actually buy – to help you decide whether they're worth your money. (For more on our reviews policy, see page 77.)

■ **Cover CD-ROMs** with demos so you can try software for yourself before you buy, programs to complement articles, selected shareware, useful utilities, reader contributions, games and more.

Whether you're a veteran or a novice, MACFORMAT will help you get more from your Macintosh, whatever you use it for.

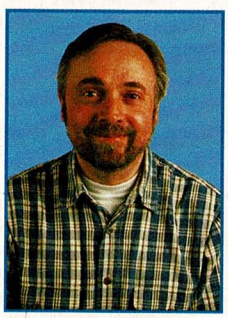
Lindsay Bruce

Our Technical Writer joined us in MACFORMAT 32 at Christmas 1995. As an incurable techie, he enjoys nothing better than testing all the new kit that passes through the office. He certainly enjoys that more than sitting down and writing up the reviews afterwards, anyway... His corner of the palatial MACFORMAT office here in Future Towers is known as The Pit, and it's littered with tools, circuit boards whose purposes are lost in the mists of time, cast-off bits of shielding from the Macs he's taken to bits, and little screws that just seemed to be left over when he put them back together again...



Brian Smith

Our still-new Disc Editor joined us just two months ago, with a degree in Graphic Design and Illustration and a bit of multimedia thrown in – very useful considering that he now spends most of his time trawling through vast quantities of dodgy shareware from the Internet, to hand-pick only the very best for our Cover CD. His life's ambition is to find the time to craft an interface and browser for the CD – that, and *not* have a double-CD issue for once, so he has a chance to catch his breath...



Rod Lawton

Our "productivity software" specialist seems to have been around MACFORMAT forever – at least, *he* keeps telling us it seems like forever... Rod is actually one of Future Publishing's veterans, and was formerly editor of *Amstrad Action* (no longer published), *PCW Plus* (discontinued) and Future's books division (disbanded). He learned a lot about Macs in these jobs – not to mention work-arounds, shortcuts and making-do – but it's no wonder he's now set up his own DTP business...

We've come a long way... example covers from MACFORMAT's foreign-language editions, plus a card (by Arnold Barton/ Hambledon Studios) sent to us by a kind reader!

arise as a result, but it is our policy to correct any errors of fact whenever we possibly can.

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MACFORMAT
ISSUE 50 ■ MAY 1997

The Finder

Reviews A-Z

Your easy index to products reviewed in this issue

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Apple UK's Jon Molyneux speaks out on page 40.

Nikon's Coolpix camera offers some fresh ideas on page 78.

See how *Poser 2* can help your graphics on page 86.

MACFORMAT's Top 50 shareware revealed on page 116.

Buyer's Guide

The Chooser 121

The authoritative buyer's guide, with advice to help you choose wisely and hot product news. Plus: is a Mac-compatible as good as an Apple?

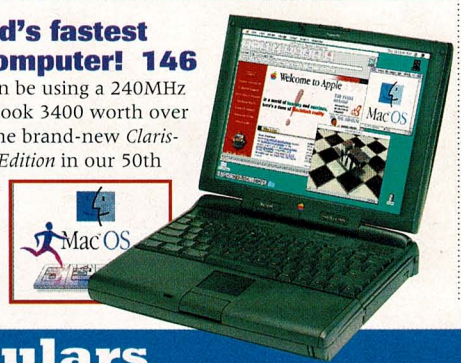
Free Reader Ads 142

Pick up the best bargains in our Mac marketplace. Software, hardware and everything in-between!

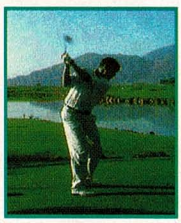
Win! Win! Win!

The world's fastest laptop computer! 146

You could soon be using a 240MHz Apple PowerBook 3400 worth over £5,000, plus the brand-new *Claris-Works Internet Edition* in our 50th issue compo! We've also got six copies of Mac OS 7.6 to win!

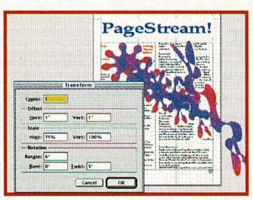


Find out why you need a PowerMac and 3D card to play *Weekend Warrior* on page 110.



Sort out your swing with *Golf Tips: Breaking 100* on page 105.

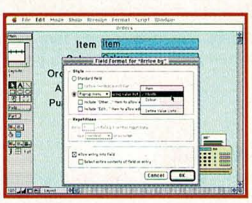
How to...



Use PageStream 60

ON THE CD

Last issue we gave you this complete DTP package, now we show you how to use *PageStream SE's* powerful object-creation and colour tools.



FileMaker Pro 3 66

ON THE CD

Entering information into your *FileMaker* database needn't be a chore: we look at creating value lists of the most common entries.

AppleScript 68

ON THE CD

You can use Apple's automation system on your programs as well on the Mac's Finder. We show you how to use *StuffIt Lite* to back up your files automatically.

Regulars

Welcome to MACFORMAT 4

Our 50th issue celebrations start here.

50 Mac Web pages 20

Discover the 50 most essential Web sites that cover the Mac – bookmark the lot.

News 22

Upheaval at Apple as the firm gets back to basics. Plus: games firms team up for the Mac!

What's New: product news 26

Infini-D 4 merges video and 3D. Plus: philosophy and *Windows*.

Apple Talk: letters 30

Fight the good fight as one MACFORMAT reader calls for an ad blitz. Plus Silly Things Your Mac Says.

MacAnswers 70

Our Mac clinicians fix problems including System updating, hard disk nightmares and lack of RAM.

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Make sure you never miss another issue of MACFORMAT!

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Classic System Crew 141

Of course, 50th issue parties are also a time for reflection...

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Catch up on scarce issues and try our new fax-back service.

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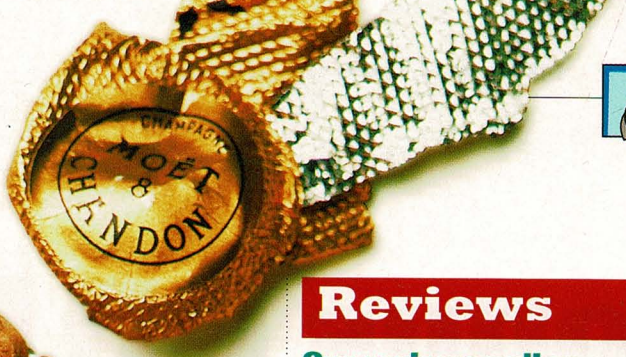
In four weeks' time, MACFORMAT gets animated.



Party on!

Apple at 21 page 36

ON THE CD

As MACFORMAT hits 50, Apple marks its 21st birthday in the middle of its biggest set of changes ever. Our 21-page feature charts the past, present and future of Apple and the Mac: Apple UK's boss reveals new machines and new plans, we test the latest Mac OS 7.6, assess Apple's plans for its new OS and discover what's ahead for the Mac!

50 Macs!

Definitive buyer's guide page 50

There are 50 Mac and Mac-compatible models on sale in the UK today. Our in-depth guide takes you through every model from every manufacturer, helping you choose the right machine for your needs and budget. Plus: we report on the clone makers waiting in the wings.

QuickTime page 62

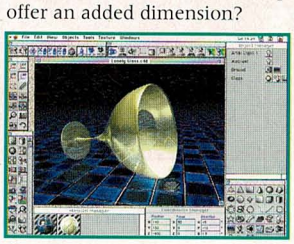
ON THE CD

Apple's video system is an integral part of a modern Web site. Here's how to use or create Web video.

Cinema 4D page 82

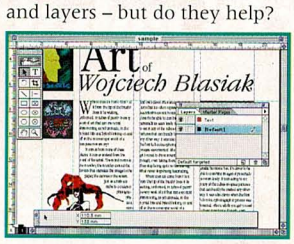
ON THE CD

As 3D rendering programs get ever faster, can newcomer *Cinema 4D* really offer an added dimension?



PageMaker 6.5 page 90

Adobe's DTP contender fights back against *Quark* with dynamic additions like frames and layers – but do they help?



MACFORMAT Cover Discs

ON THE CD

This logo in the mag indicates programs on the CD.

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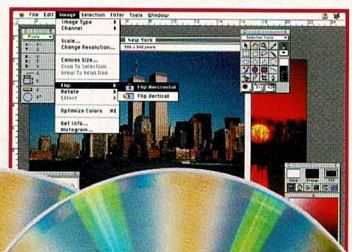
COLOR IT!™ Version 3.0.4LE

Your Cover CD-ROMs 8

An exclusive version of *Color It 3.0.4* on our bonus CD, with sample clip art from IMSI MasterClips. An exclusive playable demo of *Command and Conquer* – set to be one of the biggest Mac games of '97! Working demos of *Cinema 4D*, *Cubase* and *Weekend Warrior!* Plus: over 100Mb of shareware, including our Shareware Top 50! *(Sorry, bonus CD available in UK only)*



Your Cover Disk 18

There's over 3Mb of great software as we present a selection from our Shareware Top 50, including brand-new versions of *Snood* and *CopyPaste*.

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Why you can trust a MACFORMAT review.

Hardware

Coolpix 100 digital camera 78

Camera maker Nikon unveils a radical new digital model designed for on-the-road use...

Fujitsu 230Mb MO drive 80

...While Fujitsu offers a magneto-optical drive for highly portable storage. We give both devices a thorough testing.

Productivity

Cinema 4D 82

ON THE CD

Not just 3D modelling and rendering, but comprehensive animation features as well! How does this newcomer shape up?

Poser 2.0.1 86

ON THE CD

Fractal Design revamps its virtual model program to give you clothing, animation and that little something extra...

PageMaker 6.5 90

Can the newest version of Adobe's DTP heavyweight challenge the supremacy of *QuarkXPress?*

Music: sequencers 93

Two giants of the music industry clash – and we don't mean Jarvis Cocker and Michael Jackson. Plus: we test plug-ins for *Cubase*.

ON THE CD

Logic and Logic Audio 2.6 94
Cubase VST 3.02 95
VST Plug-ins 96

Leisure

Multimedia 104

New CD-ROM titles for sports fans and for kids are put through their paces this issue...

Cricket 104
Golf Tips: Breaking 100 105
The Time Warp of Dr Brain 106
Children's Songs of the World 109

Games 110

We cover the range, from high-powered virtual reality game shows to timeless board games.

ON THE CD

Weekend Warrior 110
The Chessmaster 4000 112
Shanghai: Great Moments 114

The Shareware Top 50 116

ON THE CD

50 great free or low-cost applications, utilities, System enhancers and games – try them all on our Cover CD!

Bonus CD

Yet another complete program – not save-disabled or time-limited – is yours this issue, plus selected clip art, sample images and more...!

The star attraction of our bonus CD this issue is a fully-working "LE" version of *Color It! 3.0.4* from MicroFrontier, a powerful yet easy-to-use full-colour paint and image-editing program. There's also a save-disabled demo of the latest version, *Color It! 3.2* and you can upgrade to that version at a special price – see the "Upgrade" box.

Among other new features, *Color It! 3.2* gives you **Open** and **Save** in JPEG and GIF format (including transparent and interlaced modes), extrude and drop shadow filters, and Bezier pen path stroking.

On your bonus CD

Color It! 3.0.4 LE
A full image manipulation package!

Color It! 3.2 Demo
A save-disabled demo of the latest version of the program, *Color It! 3.2*.

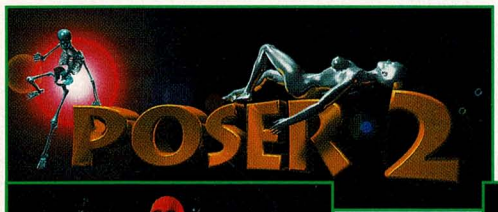
MicroFrontier PDF files
Acrobat Reader PDF files from MicroFrontier giving you more information about *Color It!* and other software from the company.

IMSI Collection
100 more sample images from the IMSI MasterClips 101,000 Image Collection in EPS and TIFF format.

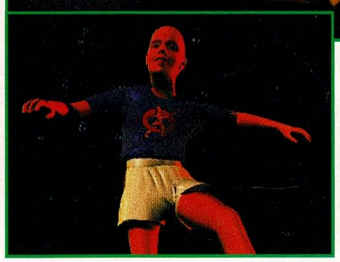
Bungie goodies
A one-level playable demo of *Weekend Warrior*, plus QuickTime movies of Bungie's eagerly-awaited action-strategy game *Myth*.

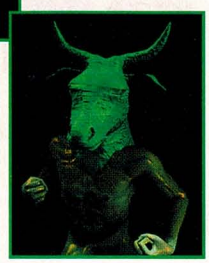
Poser 2 and Cinema4D samples
Images and animations created by Marc Woods of Inspiration FX.

Resources
All the resources you'll need to view the movies and IMSI images and read the PDF files.



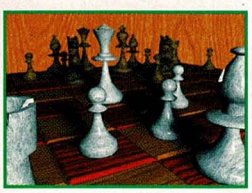
Poser 2.0.1 **is the perfect application for busy illustrators. It's also fun to play around with.**

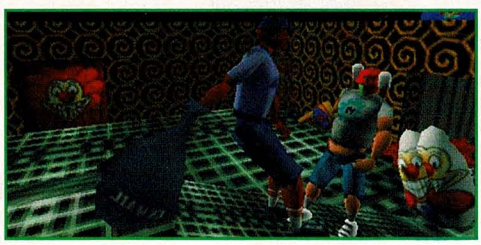




Right: *Poser 2* can use DXF models as replacements for your figure's body-parts, as shown here.

Below: The chess board scene is included in the *Cinema 4D* samples so you can see how it was built.





Left: Just another day in the life of a character from *Weekend Warrior*.

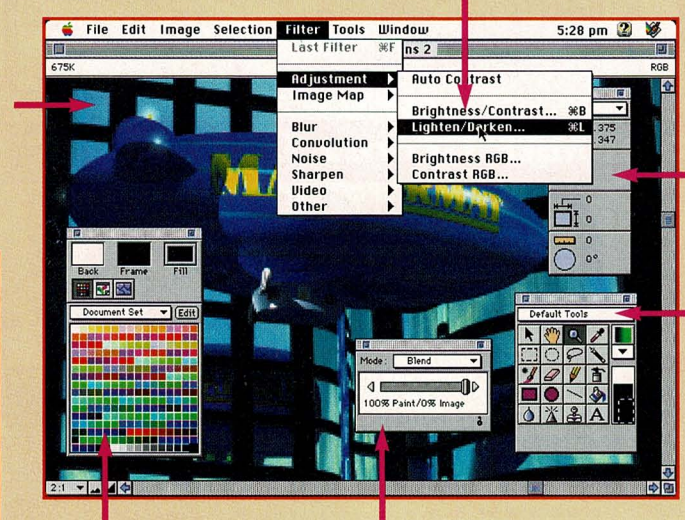
A guide to Color It! palettes

Color It! **provides you with all the features you'd expect in a fully-featured paint and image-retouching package: definable brushes, colour correction tools, filters, masks, and more. It is Plug-in compatible, so you can use *Photoshop* or *Kai's Power Tools* plug-ins to add new functions.**

Color It! **can use *Photoshop* and *Kai Power Tools* plug-ins to add options to the Filter menu.**

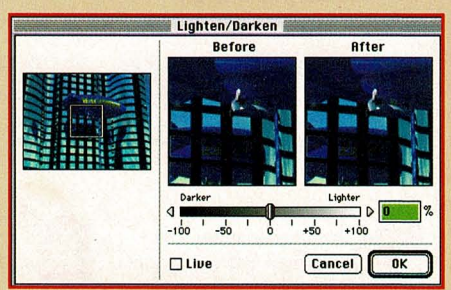
There's an on-line manual in the *Color It!* folder when you install it, giving comprehensive details of how to use the program. Here is a quick guide to the main palettes and their functions.

Images can be displayed in a floating window or directly on the screen.



The mouse coordinates display shows useful information such as the position of the pointer and the dimensions of structured shapes.

You can make custom tool set-ups, tailored to your requirements.



Color It! **has a full complement of image retouching tools, which are accessible from the Filter menu.**

Color It! **can create complex gradient and pattern fills using this palette.**

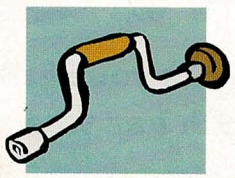
The paint controls palette enables you to set the way in which brush-strokes are applied to the image.

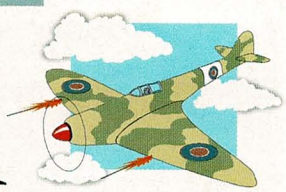
IMSI Master Clips

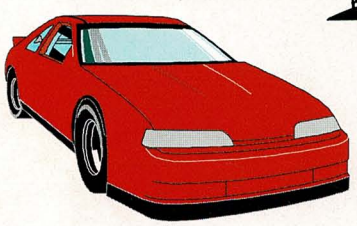
We're delighted to be able to bring you 100 more sample images on the CD, hand picked from the *IMSI MasterClips 101,000 Image Collection*. The images are supplied in EPS and TIFF format and arranged into nine handy categories: Animals, Business and Occupations, Entertainment and Music, Objects, People, Seasonal, Transportation, Travel and Vacation

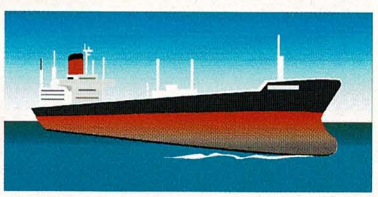
The full package comes on 14 CD-ROMs, packed with TIFFs, EPSs, JPEGs, fonts and QuickTime movies. Manuals with thumbnails of the clip-art, photos and fonts are included to help you find what you want quickly and easily.

MACFORMAT readers can order the *IMSI Master Clips* collection at a discounted price. For details, see the coupon on the right.









IMSI special offer

***IMSI MasterClips 101,000* – special MACFORMAT reader offer**

Yes! Please send me the *IMSI MasterClips 101,000 Premium Image Collection for Macintosh* at the special price of just £66.33, including UK delivery* and VAT!

Send this form to: IMSI (UK) Ltd, IMSI House, Printing House Lane, Hayes, Middlesex UB3 1AP.

Method of payment ☐ Visa ☐ Access ☐ Cheque (£ Sterling)

Card no. ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Expiry date.....

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Alternatively, to order by phone, call IMSI on 0181 581 2000 and ask for Direct Sales. Or fax 0181 581 2200, or e-mail sales@imsiuk.co.uk

* Delivery price applies to UK only. Readers outside the UK, please phone or fax IMSI for details of delivery charges.

☐ Tick if you don't want to receive details of other special offers

Your order will be processed immediately, but please allow 28 days for delivery

COLOR IT!

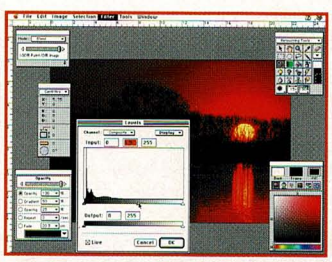
Discover what *Color It!* can do, and upgrade to *v3.2* at a bargain price!

Color It! is a full-colour (32-bit) paint and graphics manipulation package that is capable of retouching images or creating artwork from scratch. It's fast, it's friendly, and it's plug-in compatible, which means you can use a whole range of *Photoshop* or *KPT* plug-ins to add new features and enhance its functions. What's more it will run on any colour-capable Mac in just 2Mb of RAM and 2Mb of hard disk space. (If you have a PowerMac, a fully PowerMac-native version is installed automatically.)

The "LE" version on our bonus Cover CD has a limited range of features, but if you want even more you can upgrade to the latest version, *Color It! 3.2*. It's the easy-to-use alternative to hard-to-learn RAM-guzzlers like *Photoshop*, and offers a full range of powerful tools and functions, including:

- CMYK four-colour separations
- Easy, one-step extrude and drop shadow filters – add 3D effects or realistic soft-edged shadows
- RGB Channel editing
- User-defined multiple Undo levels (up to 16)
- Levels and Curves filters
- Unsharp Masking filters
- Bezier brush and Crop tools
- Kernel Brush tool to apply convolution effects with any of 24 different brushes
- Live filter previews
- Open and Save in JPEG and GIF formats (including transparent and interlaced modes) formats – ideal for graphics for the Web!
- Advanced eight-bit masking, with separate Document Masks so your file size stays manageable

For a full listing of the features offered by *Color It! 3.2*, see the Color It! Product Info.pdf file in the *Color It!* folder on the CD.



***Color It! 3.0.4 LE* is a fully-usable graphics package, but with a limited range of functions. Upgrade to *Color It! 3.2* and you get even more, as shown above...**

Color It! 3.2 requires a colour Mac with 68020 processor or better, System 7.0 and 2Mb of RAM (3Mb on a PowerMac), so it's the perfect image manipulation application for more modest set-ups. And at our exclusive special upgrade price, you can't buy better!

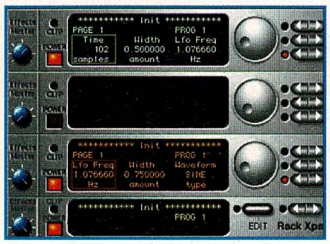
How to upgrade

As a MACFORMAT reader, you can upgrade to the latest *Color It! 3.2* for just £29.95, including UK delivery and VAT! (Overseas readers please phone +44 1225 822511 for details of delivery charges.) The CD version includes free pattern sets, clip photos, *KPT* demos and more. To order, use the Priority Order Form on page 144, specifying "Color It 3.2 upgrade" and stating the appropriate order code:

CD version	**Order code: MFCL2C**	**Price (inc. VAT): £29.95**
HD version	**Order code: MFCL2H**	**Price (inc. VAT): £29.95**

Command & Conquer

Cinema4D



Cubase VST

Weekend Warrior

Your CD-ROM

Whether you want to create rendered animations, mix your first chart success or just shoot people, Disk Editor Brian Smith has what you need.

Command & Conquer

What is it? Three playable levels
Where you'll find it: Demos folder
Mac: PowerMac only
PowerMac: any
Requires: 4Mb hard disk space, 9Mb RAM.

The hit game from Westwood Studios has finally reached the Mac. *C&C* gives you the chance to become an armchair general, directing your troops into battle against enemy soldiers, tanks and armoured vehicles. You play the side of the Global Defence Initiative, who are entrusted with destroying the terrorist organisation the Brotherhood of NOD.

But it's not just fighting. You also need to fund your army by harvesting Tiberium, which grows in fields scattered around the levels. This provides the cash to build a base and keep your forces rolling on.

Our exclusive demo contains three levels for you to sample, each of which is introduced by a briefing explaining your specific mission objectives. Check out the files README.TXT and DEMOMAN.TXT in the installed *C&C* folder for more information on how to play.

Each mission is introduced by this clean cut young man.

To Install

Double-click on the **Mac C&C demo installer**. The game requires 34Mb of hard disk space, and you will need to restart your Mac after installation to play.

Above: when you have collected enough Tiberium you can build loads of essential things like repair facilities and bases.

Left: a harvester returns from the Tiberium fields with a full load – essential for survival.

Getting started

Welcome to the MACFORMAT 50 Cover CD. Here are some tips:

■ Some of the demos on the Cover CD require installation on your hard disk – they won't run direct from the CD. Many of these programs use an installer: once you've double-clicked on it, just follow the on-screen instructions and you should be fine. Even if there's no installer, it often helps to copy demos to your hard disk – at the very least they should run faster than from the CD!

■ The icons we use on the CD folders help to give it a friendly atmosphere, but they do slow it down. Install *CDIconKiller*, which is in the Resources folder on the CD, to speed things up.

■ If you have problems quitting any of the rolling demos on the CD, just press [command] Q and you should go back to the Finder. If this doesn't work, hit [command] [option] [escape] to Force Quit.

■ It couldn't be easier to install System Extensions and Control Panels – just drag them over your closed System Folder and your Mac puts them in the right place. Then you simply need to Restart.

■ Look for this icon throughout the issue – it will point you towards the CD contents that are connected with the feature or review you're reading.

ON THE CD

Cinema4D

What is it? Save-disabled and image-watermarked demo
Where you'll find it: Demos folder
Mac: PowerMac only
PowerMac: any
Requires: 7.1.2 with Quicktime 2.1, 8Mb RAM minimum.

The Macintosh 3D graphics field could hardly be described as neglected. Powerful packages like *Strata StudioPro*, *Extreme 3D* and *Infini-D* cater for all sections of the market, whether you're making a logo, creating mock-ups of a packaging design or designing a 25th century spaceship. *Cinema4D*, already established for the PC and Amiga, has just arrived to join this crowded line-up and our save-disabled, image-watermarked demo gives you a chance to see if it is a worthy competitor.

As its name suggests *Cinema4D* is an animation package. After constructing models in wireframe and applying textures and lighting, you can animate your creations to produce a QuickTime movie.

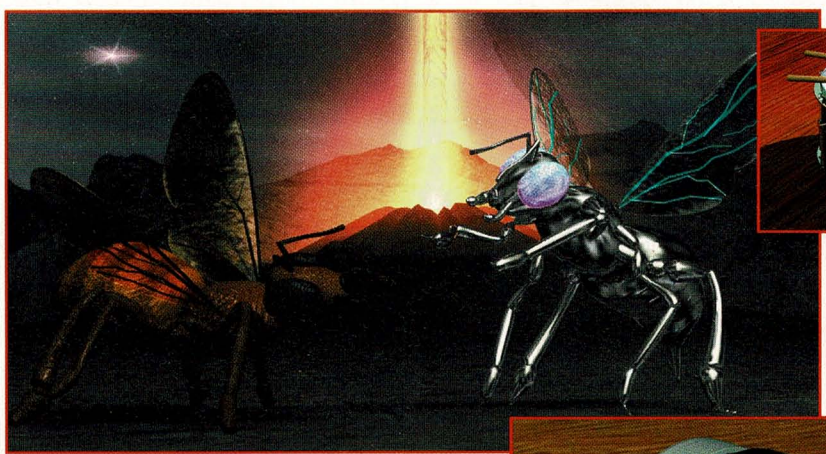
Cinema4D uses the keyframe system of animation. The position, orientation and all other relevant information about your models, cameras and lights are plotted on a time line. You then create a few of the key scenes and the computer calculates the in-between frames for you automatically.

To make recreating complex, organic forms easier, *Cinema4D* includes inverse kinematics, a system of linking objects together so they will move in a realistic manner when animated. For example, if you were to build a figure you would link the components of the leg together at the ankle, knee and hip so than when the foot is moved the rest of the leg moves at the joints with it. A basic figure that demonstrates inverse kinematics is available in the **Special Objects** field of the **Object** menu.

A step-by-step tutorial in the **QuickStart Files** folder shows you the basics of building, lighting and rendering a scene, as well as some stunning artwork and animations created with the full package – see the *Cinema 4D* review on page 82.

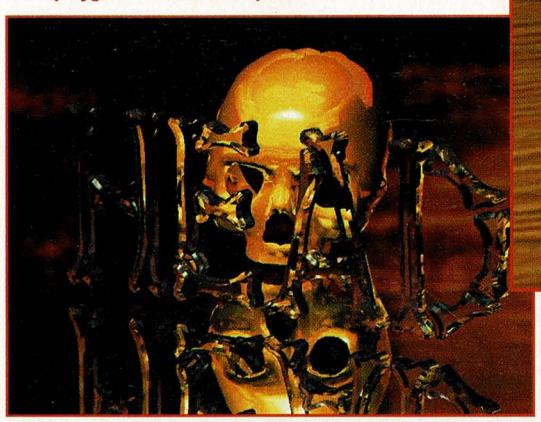
To Install

Cinema4D can be run without installing, directly from the CD. ➤



Above: giant raytraced bugs fight to the bitter end in an eerie polygon-based landscape.

Sample images created with the full package are included in the Examples folder.



Above: *Cinema4D* can create precision models suitable for something as specific as product prototyping.

Left: mix type with 3D models using *Cinema4D's* impressive extrusion function

CD Index

Find exactly what you want using our folder-by-folder guide to this issue's MACFORMAT Cover CD.

Demos

Bumbler ■ Cinema4D ■ Command & Conquer ■ Cubase VST ■ Exploring Mac OS 7.6 ■ MLPro ■ Star Fleet Academy Preview ■ Steinberg Interactive Product Line

Shareware Top 50

About This Particular Mac 3.01 ■ CopyPaste 3.3 ■ Default Folder 2.6.1 ■ Disinfectant ■ DOCMaker SW v4.7 ■ DOOM I ■ File Buddy ■ Foobar Versus the DEA ■ GraphicConverter 2.6 ■ Knot 3.7.1 ■ Mechanisto 2.0 ■ Realmz™ 4.0 ■ SCSIProbe 4.3 ■ Smile ■ Snitch ■ And many more! **See page 116.**

How-to's

Sample files and resources to help you follow this issue's tutorials: ■ Movie Cleaner Lite 1.2, QuickTime Plug-in 1.1, QuickTime MPEG Extension, QuickTime Streamliner (**See QuickTime on the Net, page 62**) ■ FileMaker Pro 3 sample database (**See page 66**) ■ Example AppleScripts (**See page 68**)

Jonni Starr Episode 5

The continuing exclusive adventures of our animated SF hero.

MACFORMAT Floppy

CopyPaste 3.3 ■ Electric Poet 1.5 ■ ePress 4.0 ■ File Buddy ■ Greg's Buttons 3.7.6 ■ Insult Generator ■ SimpleCard 2.01 ■ Snood 2.0

Readers' Corner

More great artwork and contributions from our readers.

Resources

Acrobat Reader 3.0 ■ CDIconKiller 1.3.3 ■ Disinfectant ■ DOCMaker SW v4.7 ■ DropStuff w/EE™4.0 ■ GraphicConverter 2.6 ■ MacFormat CD Index ■ NewsWatcher ■ QuickTime™ 2.5 ■ ResEdit ■ ShrinkWrap™ 2.1 ■ SoftwareFPU 3.04 ■ Sound Manager 3.2 ■ StuffIt Expander 4.0.1 ■ System Updates

Shareware Plus

Save yourself a surf – pick up over 100Mb of the very latest shareware from the Internet, all pre-arranged into handy categories.

CFM-68K Runtime Enabler bug fix

Apple has released a bug fix for the CFM-68K Runtime Enabler extension used by OpenDoc, Cyberdog, *Internet Explorer* and many other programs. This bug fix is included on the Cover CD. If you are using System 7.1 or above on a 68K Mac (any non-PowerPC) then you should replace any earlier versions of CFM-68K Enabler with version 4.0 and place the ObjectSupportLib 1.2 file loose in your System folder. PowerPC Macs do not use the CFM-68K Enabler and if you own one of these then you should not install it.

Cubase VST

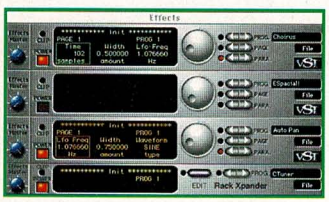
What is it? Virtual mixing studio
Where you'll find it: Steinberg Demos folder in the Demos folder
Mac: PowerMac only
PowerMac: any
Requires: System 7.5 and 16Mb of RAM (cannot be run using Virtual Memory), Level 2 cache, 4.4Mb hard disk space.

Cubase VST (Virtual Studio Technology) is a complete mixing studio for your Mac. If you're seriously into making music and you have a hefty PowerMac, then you'll really appreciate this.

Cubase provides all the elements you need to record and mix tracks on your Mac, and there's no need to buy any additional specialist hardware. It supports MIDI and direct-to-disk recording, as well as giving you a virtual mixing desk that enables you to overlay individual tracks and apply effects.

The number of tracks you can add is dependant on the raw processing power of your Mac. Equally, the playback quality you will achieve is affected by the speed of your hard disk and processor.

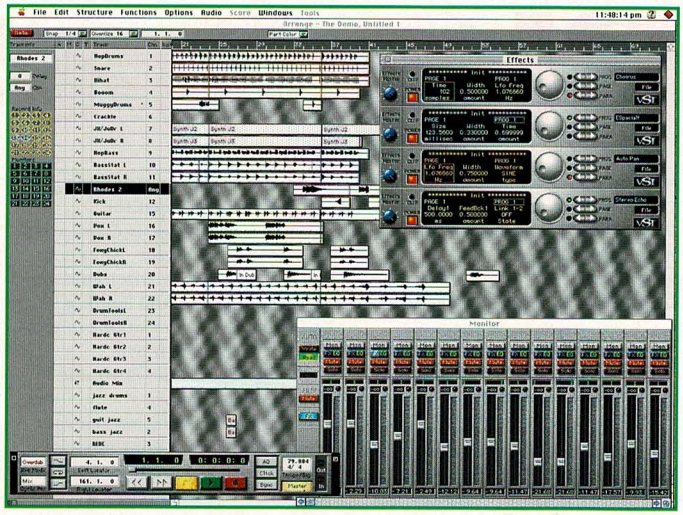
For more information, see our review of the latest version of *Cubase VST*, starting on page 93.

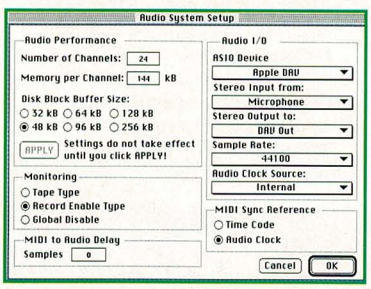


Use *Cubase VST* to record your own music and then apply effects to the tracks of your composition.

To Install

Double-click on the Cubase Installer in the Cubase VST Demo Installer folder. You will need to Restart your Mac after installation.





Above: *Cubase VST* provides all the elements you would find in a real recording studio in easily accessible software form.

Left: *Cubase VST* can be configured to best suit your hardware's capabilities.

Weekend Warrior

What is it? One level playable demo
Where you'll find it: second CD (UK only), also on last issue's CD
Mac: PowerMac only
PowerMac: any
Requires: 3D graphics card for texture mapping.

Think of the name Bungie and you'll think of *Marathon*, a fast, addictive game with just a little bit of violence thrown in for good measure. Well Bungie has done it again with the release of *Weekend Warrior*.

Although you're going to need a high spec Mac to run it, you'll find that *Weekend Warrior* takes the basics of *Marathon* and then places them in a truly 3D environment. No pixellated sprites here; this is all generated in real time. If you buy the full version and have a 3D graphics card, you can map faces onto the characters too. See the full game review on page 110.

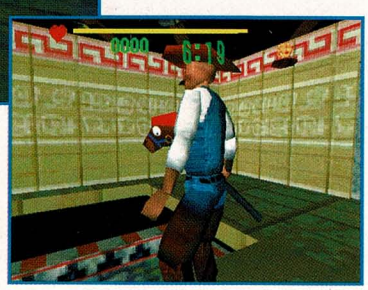
The idol is the key you're going to need to secure your escape from the first chamber.

To Install

Double-click on the *Weekend Warrior* installer and follow the on-screen instructions.

Continued on page 16 ➤

Left: don't look now, but a crocodile has just come to say "Hello"!



Right: you're going to have to watch out for that hole.

Left: the cowboy gets ready for action with his deadly weapon – a toy horse.

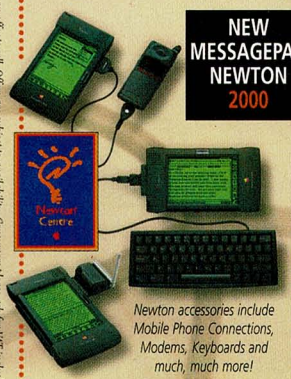
Have you heard the NEWS from Harwoods?

Latest MAC products

NEW Apple Products from GH at SUPER LOW PRICES!

Newton MessagePad 2000
Including Word Processor, e-mail, WWW Browser and Spreadsheet software...
SPECIAL GH INTRO OFFER
only... **£549**
SEE PAGE 3 OF THIS ADVERT OR CALL GH NOW FOR MORE INFORMATION!

NEW MESSAGEPAD NEWTON 2000



With the brand new Apple **MessagePad 2000** you can use those essential business applications even when you're away from the office. And, weighing in at under a pound and a half (0.64Kg), the Newton MessagePad 2000 won't give you a hernia either!

When you are on the move, you and your 2000 can stay in touch. Simply slip a modem into one of its two PC Card Slots and you're ready to send/receive e-mail/faxes or connect to the Internet or an Intranet. You can even make those connections using your GSM Mobile Phone with the optional wireless data card.

In terms of speed, the new 2000 is up to **TEN TIMES FASTER** than any previous model and also has more memory. Its backlit screen is larger and features 16 levels of grey at 100 dpi, there is an internal speaker, an internal microphone, software for connecting to both Mac and PC and a truly remarkable 24 HOURS OF CONTINUOUS BATTERY LIFE. Information at your fingertips, wherever you are, is here now!

Newton accessories include Mobile Phone Connections, Modems, Keyboards and much, much more!

Remember GH is your authorised NEWTON CENTRE

GH 15TH ANNIVERSARY 1982-1997

GH is a family business established in 1955. We've been supplying systems since 1982 and now with over £50 million worth of units sold, and a quarter of a million happy customers... Our Trading Record is Second to None!

We think we offer the BEST overall deal possible and... because we are appointed and authorised by Apple for our high standard in Hardware Maintenance and Care, YOU can rest assured you'll get the BEST service too!

GH offers you everything!

NEW 1440dpi PRINTERS

Epson Stylus Color 600
1440 x 720, up to 6ppm mono, 4ppm colour, plain paper printing, A4 size

Epson Stylus Color 800
1440 x 720, up to 8ppm mono, 7ppm colour, plain paper printing, A4 size

Epson Stylus Color 1520
1440 x 720, up to 960cps draft, 480cps LQ, plain paper printing, A4 to A2 size

EPSON *Stylus*

NEW APPLE QUICKTAKE 200 CAMERA

The brand new Apple **QuickTake 200 Camera** offers you better image quality that doesn't cost the earth...

- 640 x 480 Pixels
- 24-Bit - Millions of Colours
- 2Mb Storage Card to hold... 30 standard quality images or, 20 high quality images or, a combination of both qualities
- Optional 4Mb Card (also fits current PowerBooks) holds twice as much!
- Images stored in standard JPEG
- Focus Free Lens
- Auto-white balance for indoor and outdoor photography
- 1.8" LCD Viewfinder/Viewing Screen which also allows you to scroll through images already captured as a 'slide show'
- NTSC Video Out Port
- Video conferencing via A/V Macs with appropriate software
- Includes... cables to connect to your Macintosh, PageMill 2.0, PhotoDeluxe 1.0 and PictureWorks NetCard 1.1 software
- Ideal for education, small/home office and corporate users

ONLY... **£399**

GH ARE NOW HIRING STAFF...

So, if you have a good knowledge of Macintosh products and/or... a technical background or... sales experience, please write in the first instance to Gordon Harwood Computers Limited at the address shown in this ad enclosing a current CV.

Showroom GH

If you want to see products for YOUR Apple System, there's no better place to visit than the great GH showroom. LOOK FORWARD TO SEEING YOU HERE.

visit THE BEST Showroom in the UK

We have more products in stock than those listed in our advertisement *(please phone and check about a particular item before making a long journey)* and our staff are happy to offer impartial and friendly advice. Why not call in and see us, we're at the heart of the UK and only around an hour's drive away from Birmingham, Northampton or Manchester. And... even travelling from **London** doesn't take much longer!

PERFECT PAIR OF PRINTER PROMOTIONS FROM GH

StyleWriter 2500

Claim a **FREE** Apple Colour PhotoGrade Print Kit Voucher worth £47 when you buy an Apple Colour StyleWriter 2500 from GH before 31st July 1997! Then you'll be able to produce high quality photo realistic images from YOUR Mac and new 2500 printer!
(Voucher offer must end 31.7.97)

LaserWriter 12/640PS Trade-In

Trade in your old worn out Laser (even if it doesn't work!) and GH will give you **£DISCOUNT** on a new LaserWriter 12/640PS Laser Printer! But hurry, offer MUST END 31st July 1997!

JAZ CARTRIDGE SCOOP

1Gb Capacity Jaz Cartridges...
Single Cartridge **£59** Three Pack of Cartridges **£175**

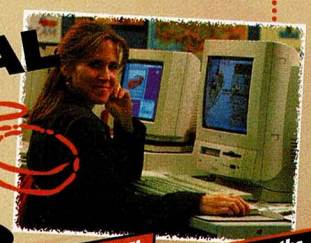
NEW System 7.6
From GH includes Apple Internet Connection Kit V1.2 with Netscape Navigator V3.0 WORTH £47 - FREE!

Latest Mac OS on CD with additional features and functionality plus improved productivity, efficiency and PC compatibility
Includes... • CyberDog 1.2.1* • Open Transport 1.1.1 • Extensions Manager 4.0 • LaserWriter 8.4.2** • QuickTime 2.5 • PC Exchange 2.1.1 • MacLinkPlus 8.1 • Text-to-Speech 1.5 ...and more! All this means you'll be able to connect and explore the Internet more easily, enjoy faster and easier networking, manage your system more efficiently, take advantage of better cross-platform capabilities and share/translate disks with PC users (and now Windows 95 users) plus... lots more System 7.6 enhancements too!
** PowerPCs only, **PowerPCs only (8.3.4 for 68K to follow)*
Voucher in-box for floppy version at additional cost

Please note Mac IIx, IIcx or SE30 users... System 7.6 is NOT compatible with your Mac, please ask about System 7.5.5.

A MUST AT ONLY... £55

SPECIAL GH limited offers



PERFORMA 5320

HURRY, LAST FEW REMAINING!

NOW WITH 16Mb RAM and... A LOWER PRICE!!!

FREE 12 Months On Site Apple Warranty

- 120MHz 603e PowerPC CPU
- Now with 16Mb RAM • 1.2Gb Hard Drive
- Quad CD ROM • Integral 15" Colour Monitor
- Built-in TV/Teletext Tuner • Video In facility
- MPEG for Full Motion Video from CD
- 28.8bps Modem • Apple Design Keyboard
- Disney Plus 3 Software Pack

DISNEY Plus 3 Software Pack...
• At Ease • Mavis Beacon • ClickArt • Claris Works • Thinkin' Things 2 • SuperMaze Wars • MacGallery • Millie's Math House • HyperCard Player • Spin Doctor • System Software ALL PRE-INSTALLED ON HD
PLUS on CD ROM...
• MYST • The Way Things Work • Rock Rap & Roll • Daedalus Encounter • Making Music • RedNex • Grolier Multimedia Encylopedia *AND*, Disney's... • LION KING Story Book • ALADDIN Activity Centre • THE TOY STORY (Preview) *AND...* •THE APPLE INTERNET CONNECTION KIT

ONLY... **£949** Just £7.51 Per Week*

REMEMBER... APPLE MPEG and TV/VIDEO SYSTEM ARE INCLUDED IN OUR 5320 OFFER!

This advertisement is an invitation to treat, not an offer to sell. Offers are subject to availability. Consumers please ask for VAT inclusive prices. All transactions are subject to Harwood's Terms and Conditions of Sale, a copy of which is available on request. E.&O.E. Software/Product packaging for bundled systems/items may not be included and is shown for illustration purposes only.

gordon harwood computers

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CHECK OUT THIS MONTH'S OFFERS AND LATEST NEW PRODUCTS HERE!

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Please check availability before making a long journey

We accept most major Credit and Debit Cards and there are NO SURCHARGES!

For your protection all Cards are fully Security Checked

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We supply Central, Local Government and Education Departments along with Major PLCs

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on 01773 831040 for a Rapid Response to your Quotation or Order Requirements!

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gordon computers **harwood**

GH™

We've been building a solid reputation for the last 15 years... and our Apple accreditations support this.

Authorised Reseller

Authorised Service Provider

Commercial Credit Provider

Newton Centre

Authorised Higher and Further Education Alliance Reseller

- KEEN PRICES
- GREAT DEALS
- ESTABLISHED 1982
- APPLE APPOINTED
- WARRANTY OPTIONS
- SPEEDY DELIVERIES
- FRIENDLY STAFF
- CENTRAL TO UK
- FINANCE OPTIONS

GH PERSONAL FINANCE † INCLUDING AN OPTION WITH NOTHING TO PAY UNTIL SUMMER '97!

PERSONAL FINANCE - DEFERRED PAYMENT PLAN◆ FOR INDIVIDUALS VISITING OUR SHOWROOMS AND PAYING A MINIMUM OF 10% DEPOSIT

OPTION 1: BALANCES OVER £2000: PAY NOTHING MORE FOR 6 MONTHS OR,

OPTION 2: BALANCES OVER £1200: PAY NOTHING MORE FOR 4 MONTHS OR,

OPTION 3: UNLIMITED BALANCES OVER £500: CHOOSE OUR 'LOW COST' FIXED TERM PERSONAL LOAN, 24.9% APR OVER 2 YRS, OR 21.9% APR OVER 3 YRS - a Lower Cost alternative 2 or 3 year agreement, for those who wish to spread the cost over a longer period than 4 or 6 months.

OPTIONS 1 & 2 - During the deferred period you can settle IN FULL (without finance charges) or... continue agreement with normal interest arrangements (ie. Direct Debit 27.8% APR, 2.07% Per Month or Payment Book 32.4% APR, 2.37% Per Month). For the first 4 or 6 months you'll also receive FREE Agreement Life Cover

Written details available on request. †Subject to status and an £18 arrangement fee. Please contact us prior to visiting for Easy Application requirements.

GH BUSINESS FINANCE...

BUSINESS FINANCE ◘ : Weekly rates shown exclude VAT and are based on a fixed cost 3 Year Apple Commercial Credit Lease payable quarterly after an initial deposit payment. Available to all businesses (including recently established) making a minimum total purchase of £750 - *subject to status. FULL Details available on request.*

GH BUDGET ACCOUNT...

If you can't visit us personally, why not ask for an Application Pack to request a convenient, flexible GH BUDGET ACCOUNT CARD. No deposit finance can be arranged by mail. Once established, you can purchase with your new card leaving your existing credit card limits intact.

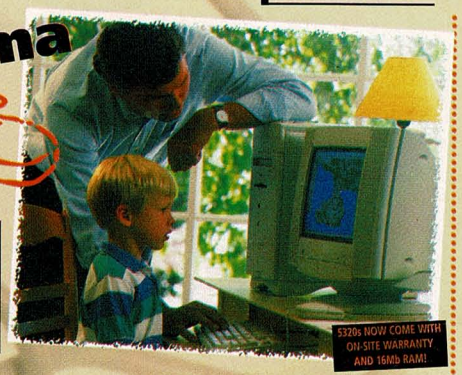
Harwood's Super Spring Savers...

pay Just 10% Deposit then Nothing until SUMMER◆

GH™ GH 15TH ANNIVERSARY 1982-1997

Performa MAC computers

FROM... **£699** Just £5.55 Per Week✤



Model	MHz	CPU	RAM	HD	CD	Display	TV/Text	Video	MPEG	Modem	Keyboard	Price	Software Pack
5260	100	603	12	800Mb	✔4	14" Integral	✘	✘	✘	✘	Design	**£CALL**	CLARIS WORKS
5260	120	603	12	1.2Gb	✔4	14" Integral	✘	✘	✘	✘	Design	**£799**	CLARIS WORKS
5320	120	603	16	1.2Gb	✔4	15" Integral	✔	✔	✔	✔28.8	Design	**£949**	DISNEY PLUS 3
6320	120	603	12	1.2Gb	✔8	✘	✘	✘	✘	✘	Design	**£699**	DISNEY PLUS 3
6320	120	603	12	1.2Gb	✔8	15" M/S	✘	✘	✘	✘	Design	**£929**	DISNEY PLUS 3
6320	120	603	12	1.2Gb	✔8	15" AV M/S	✘	✘	✘	✘	Design	**£999**	DISNEY PLUS 3
5400	160	603e	16	1.6Gb	✔8	15" Integral	✘	✘	✘	✔28.8	Design	**£1099**	FAMILY PACK
5400 Black Mac	180	603e	16	1.6Gb	✔8	15" Integral	✔	✔	✘	✔28.8	Design	**£1199**	FAMILY PACK
6400	180	603e	16	1.6Gb	✔8	✘	✘	✘	✘	✔28.8	Design	**£849**	HOME OFFICE
6400	180	603e	16	1.6Gb	✔8	15" AV M/S	✘	✘	✘	✔28.8	Design	**£1149**	HOME OFFICE
6400	200	603e	16	2.4Gb	✔8	✘	✘	✘	✘	✔28.8	Design	**£999**	HOME OFFICE
6400	200	603e	16	2.4Gb	✔8	15" AV M/S	✘	✘	✘	✔28.8	Design	**£1299**	HOME OFFICE
6400	200	603e	24	2.4Gb	✔8	✘	✔	✔	✘	✔28.8	Design	**£1749**	CREATIVE STUDIO
6400	200	603e	24	2.4Gb	✔8	15" AV M/S	✔	✔	✘	✔28.8	Design	**£2049**	CREATIVE STUDIO

FAMILY Software Pack...
• Mac OS • HyperCard Player • Acrobat Reader • MacLink Plus • Apple Video Player • Apple Telecom 3.0 • Claris Works 4.0 • At Ease • Apple Internet Connection Kit • 120 Letters • Performa ClickArt • Descent • Full Throttle • Thinkin' Things 3 • Sammy's Science House • Grolier Multimedia Encyclopaedia • The Best of European Soccer • DK's Ultimate Human Body • PowerPete
PLUS... • Disney Pack VOLUME 1 • Aladdin Activity Centre • Lion King • Story Book and... • The Toy Story Preview

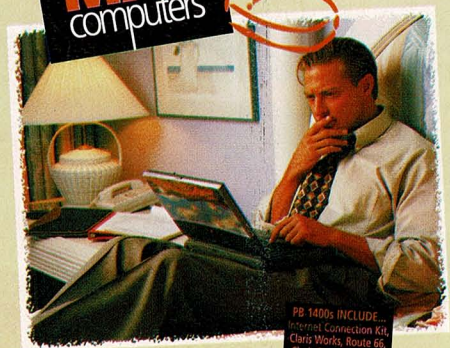
HOME OFFICE Software Pack...
• All the items listed in the FAMILY pack *PLUS...*
• Claris Impact and... • Claris Organiser!

DISNEY Plus 3 Software Pack...
• At Ease • Mavis Beacon • ClickArt • Thinkin' Things 2 • Claris Works 3 • Millie's Math House • Spin Doctor • System Software • MacGallery • HyperCard Player • SuperMaze Wars ALL PRE-INSTALLED ON HD.
PLUS on CD ROM... • Making Music • MYST • The Way Things Work • Daedalus Encounter • Grolier Multimedia Encylopedia • RedNex • Rock Rap & Roll *AND*, Disney's... • LION KING Story Book • ALADDIN Activity Centre • TOY STORY (Preview)
PLUS... •THE APPLE INTERNET CONNECTION KIT

CREATIVE STUDIO Software Pack...
• All the items listed in the FAMILY pack *PLUS...* • Cubase AV • Power GOO • Dabbler • Avid Cinema • Adobe PhotoDeluxe and... • Adobe PageMill

PERFORMA 630, 5200, 5260, 5300, 5320, 6200, 6300 and 6320 OPTIONS...
• **Personal COMMS Solution** *(models without Ethernet)* FAX, Internet and Answer Phone facility, etc... **14.4** version **£109** **28.8** version **£179**
• **Ethernet Cards** *(models without Personal Comms)* **Thin Co-Ax £59 UTP £59 AUI** (requires adaptor) **£59** • **Apple** Internet Connection Kit **£47**
• **Apple** Video Out Card **£219** • **MPEG** FMV Video CD Playback Card *(only fits 630 models without a DOS Card)* **£175** • **D2** FM Radio Tuner **£59**
PERFORMA 5400 and 6400 OPTIONS...
• **Apple** Video-In Card **£69** • **Apple** Video-In TV Tuner Card **£129** • **Apple** COMMS Slot II Ethernet Card **£75** • **Apple** 256K Level 2 Cache Card **£75**

PowerBook MAC computers



1400cs/117 12/750, DS	**£1629**
1400cs/117 16/750, DS, Quad Speed CD	**£1899**
1400cs/117 16/750, Quad Speed CD, DS, StyleWriter 2200, Carry Case	**£2149**
1400c/133 16/1100, Quad Speed CD	**£2649**
3400c/180 16/1300	**£2999**
3400c/180 16/1300, 12 Speed CD, Ethernet	**£3199**
3400c/200 16/2000, 12 Speed CD, Ethernet	**£3499**
3400c/200 32/2000, 12 Speed CD, Ethernet, inc. SoftWindows 3.11	**£3749**
3400c/240 16/3000, 12 Speed CD, Ethernet	**£4399**
Duo 2300c/100 20/1100 EM AM	**£1549**

POWERBOOK OPTIONS...

1400 6 Speed CD ROM	**£199**	**1400** 8Mb Upgrade	**£65**
1400 ZIP Drive VST	**£219**	**1400** 16Mb Upgrade	**£119**
1400 Car Adaptor VST	**£79**	**1400** 24Mb Upgrade	**£159**
1400 AC Adaptor	**£39**	**3400** Lithium Ion Battery	**£129**
1400 Battery	**£69**	**Sony** Portable CD Player & PCMCIA Adaptor	**£309**
1400 TDK 28.8 Fax/Modem	**£229**	**PowerBook Carrycases**	*from* **£25**
1400 8-Bit Video Out Card	**£70**	*Accessories also available for earlier PBs inc.150/190/5300*	

MEMORY

RAM	4Mb	8Mb	16Mb	32Mb	64Mb	8/16/32/64Mb EDO DIMM UPGRADES AVAILABLE PLEASE CALL
SIMMs	£CALL FOR BEST PRICES!					
DIMMs	£CALL FOR BEST PRICES!					

Displays MAC

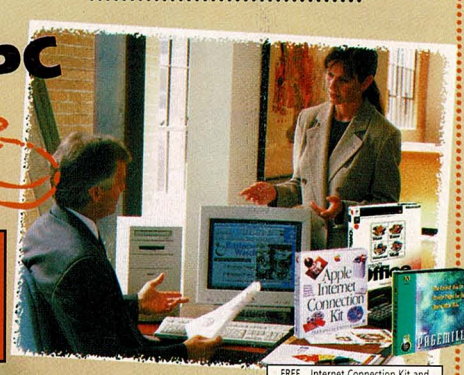
GH Budget 14" Multisync (.28)	**£189**
GH 15" Multisync (.28)	**£239**
Apple 15" Multiscan (.28)	**£289**
Apple 15" AV Multiscan (.28)	**£359**
Apple 17" 1705 TCO MultiScan (.26)	**£449**
Apple 17" 1710 TCO Trinitron MultiScan (.26)	**£549**
Apple 17" 1710AV TCO Trinitron MultiScan (.26)	**£599**
Apple 20" Trinitron MultiScan II (.26)	**£1199**
Mitsubishi 15" Diamondtron HX Multisync	**£259**
Mitsubishi 17" Diamondtron TXV Multisync (.25)	**£425**
Mitsubishi 17" Diamondtron TXM Multisync (.25)	**£499**
Mitsubishi 21" Diamondtron TXM Multisync (.28)	**£1049**
Sony 15" 100SX Trinitron Multisync (.25)	**£279**
Sony 15" 100SFT Trinitron Multisync (.25)	**£339**
Sony 17" 200SX Trinitron Multisync (.25)	**£479**
Sony 20" 300SFT5 Trinitron Multisync (.30)	**£995**
Formac 17" F17 FST Multisync (.26)	**£399**
Formac 17" ProNitron F17 400 Trinitron Multisync (.26)	**£499**
D2 21" Electron 21 (.28) Including 3 Year Site Warranty	**£1149**
GH Prices **INCLUDE Adaptors** for all Monitors **FREE**!	

DISPLAY OPTIONS...
Video and Graphics Cards...

I.M.S. Twin Turbo 4Mb Card	**£339**
I.M.S. Twin Turbo 8Mb Card	**£499**
Formac ProVision 2/20 (2Mb, 64 Bit, Half Length)	**£159**
Formac ProVision 2/40 (4Mb, 64 Bit, Half Length)	**£199**
Formac ProVision 4/60 (4Mb, 128 Bit, Half Length)	**£299**
Formac ProVision 4/80 (8Mb, 128 Bit, Half Length)	**£369**
Formac ProVision 4/80 (8Mb, 128 Bit, Accelerated, Half Length)	**£549**
Miro Motion DC20 Video Editing Card (Adobe Premiere 4.2)	**£699**
MacPicasso 520 (PCI, 64 Bit, 4Mb)	**£199**
MacPicasso 535 (PCI, 128 Bit, 4Mb)	**£290**
VRAM Upgrades... To give even higher screen resolutions and more colours etc.	**£CALL**

PowerPC MAC computers

FROM... **£799** Just £6.32 Per Week✤



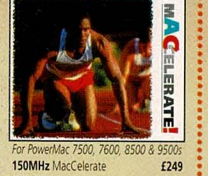
FREE... Internet Connection Kit and PageMill with ALL Power Macs and Microsoft Office FREE with... 7300, 7600, 8200 and 8600 models!

Model	MHz	CPU	RAM	DRIVE(S)	CD	Ethernet	Display	Graphics	Keyboard	Price
4400/160	160	603e	16	1.2Gb	✔8	✘	✘	Inbuilt	Design	**£799**
4400/160	160	603e	16	1.2Gb	✔8	✘	15" M/S	Inbuilt	Design	**£999**
4400/200	200	603e	16	1.2Gb	✔8	✘	✘	Inbuilt	Design	**£899**
4400/200	200	603e	16	1.2Gb	✔8	✘	15" M/S	Inbuilt	Design	**£1099**
4400/200	200	603e	16	2Gb	✔8	✔	✘	Inbuilt	Design	**£1049**
4400/200	200	603e	16	2Gb	✔8	✔	15" M/S	Inbuilt	Design	**£1249**
7200/90	90	601	8	1.2Gb	✔4	✔	✘	Inbuilt	✘	**£949**
7300/166	166	604e	16	2Gb	✔12	✔	✘	Inbuilt	Extended	**£1699**
7300/200	200	604e	32	2Gb	✔12	✔	✘	Inbuilt	Extended	**£2099**
7600/132	132	604	16	1.2Gb	✔8	✔	✘	Inbuilt	✘	**£1299**
8200/120	120	601	16	1.2Gb	✔8	✔	✘	Inbuilt	✘	**£1049**
8550/200	200	604e	32	2Gb	✔8	✔	✘	Inbuilt	✘	**£1999**
8600/200	200	604e	32	2Gb + ZIP	✔12	✔	✘	Inbuilt	Extended	**£2249**
9500/200	200	604e	0	0Gb	✔8	✔	✘	✘	✘	**£1499**
9500/200	200	604e	32	2Gb	✔8	✔	✘	✔ATI	✘	**£2099**
9500/2x180	2x180	604e	32	2Gb	✔8	✔	✘	✔ATI	✘	**£2499**
9600/200	200	604e	0	0Gb	✔12	✔	✘	✘	Extended	**£1799**
9600/200	200	604e	32	4Gb	✔12	✔	✘	✔IMS	Extended	**£2599**
9600/2x200	2x200	604e	32	4Gb	✔12	✔	✘	✔IMS	Extended	**£3299**
9600/233	233	604e	0	0Gb	✔12	✔	✘	✘	Extended	**£2199**
9600/233	233	604e	32	4Gb	✔12	✔	✘	✔IMS	Extended	**£3199**

CUSTOMISED POWERMACS FROM GH.. Ask us about supplying you with the specification you want on our range of PowerMacs. Listed above are standard models, we can add extra memory, hard drives, accelerators, graphics cards etc.

POWERMAC OPTIONS...

256k Cache DIMM (75/85/9500)	**£76**
512k Cache DIMM (75/85/9500)	**£97**
ETHERNET 10 BaseT (RJ45), 7" PCI Expansion Card	**£85**
ETHERNET 10 BaseT and 10 Base2 (Thin Coax), 7" PCI Card	**£108**
Apple 586 100MHz, PC - PCI Card with 8Mb and DOS 6.22	**£489**
Apple Pentium 100MHz, PC - PCI Card with 8Mb and DOS 6.22	**£610**



For PowerMac 7500, 7600, 8500 & 9500s

150MHz MacCelerate	**£249**
180MHz MacCelerate	**£349**
200MHz MacCelerate	**£499**

Manufacturers' specifications and GH prices are correct at time of going to press, however, they may fluctuate and we therefore reserve the right to amend them - please confirm prices before ordering. Software/Product packaging for bundled systems/items may not be included and is shown for illustration purposes only.

PRINTERS

LASER PRINTERS...

APPLE LaserWriter 4/600PS - A4, 600 dpi Mono £599
APPLE LaserWriter 12/640PS - A4, 600 dpi Mono £1099
APPLE LaserWriter 16/600 - A4, 600 dpi Mono £1399
APPLE LaserWriter 12/660PS - A4, 600 dpi Colour £4499
HP LaserJet 6MP - A4, 600 dpi Mono, 3Mb RAM, 8ppm. Features both Parallel and Local Talk Connections £649
LEXMARK Optra R+ Pro - A4, 1200 x 1200 dpi Mono, 8Mb, LocalTalk, 16ppm at 600dpi or 8ppm at 1200dpi, On-Site Maintenance £1199
NEWGEN DXP - A3, 600 x 600 dpi Mono, Ethernet, PS2, LocalTalk, 8 ppm £2399
NEWGEN DXP+ - A3, 1200 x 1200 dpi Mono, Ethernet, PS2, LocalTalk, 8 ppm £3999
GCC Elite 12/12 - A4, 600 x 600 dpi Mono, 16Mb, Ethernet, features Edge to Edge print! £1099
GCC XL 608 - A4, 600 x 600 dpi Mono, 6Mb, Ethernet, features Edge to Edge print! £1899

INKJET PRINTERS...

APPLE StyleWriter 1500 Colour 720 x 360dpi £149
APPLE StyleWriter 2200 Colour 720 x 360dpi £229
APPLE StyleWriter 2500 Colour 720 x 360dpi £229
APPLE StyleWriter EtherTalk Kit £145
CANON BJC4550 Colour - A3 Mac or Amiga £309
EPSON Stylus Colour 600 - Colour - A4 1440 x 720dpi £229
EPSON Stylus Colour 800 - Colour - A4 1440 x 720dpi £329
EPSON Stylus Pro XL+ - Colour - A3 720 x 720dpi £829
EPSON Stylus Colour 1520 - Colour - A2 1440 x 720dpi £599
HP 870Cxi DeskWriter - Colour 600 x 600dpi £329
LEXMARK 4079+ - A3, 360 dpi Colour, 4Mb, PS2, LocalTalk £2149
LEXMARK 4079+ Pro - A3, 360 dpi Colour, 20Mb, PS2, LTalk £2389

PRINTER UTILITIES...

POWERPRINT - Allows use of parallel printers with your Mac £79
STYLESCRIPT - Adobe PS RIP for Apple Colour StyleWriters £79
BIRMY PostScript RIP - for Stylus Pro/Pro XL+ £175
EPSON PS RIP - for new Stylus 600/800/1520 range £Available Soon

PRINTER CONSUMABLES

APPLE STYLEWRITER...		
I, II, Portable, 1200, 1500 (M8041G/A)	Black Cartridge	£14
1500 (M4609G/A)	Colour Cartridge	£23
2400, 2500 (M3240G/A)	Black Cartridge	£26
2400, 2500 (M3328G/A)	Colour Cartridge	£33
2400, 2500 (M3330G/A)	Black Ink Tank	£7
2400, 2500 (M3329G/A)	Colour Ink Tank	£13
2500 (M5577ZM/A)	Photograde Kit	£47
2500 (M5581G/A)	Premier Plus Paper	£29
2500 (M5579G/A)	Photograde Ink Cartridge	£25
Colour StyleWriter Pro (M3822G/A)	Black Hi-Capacity Cartridge	£8
Colour StyleWriter Pro	C, M, or Y Cartridge	ea. £8
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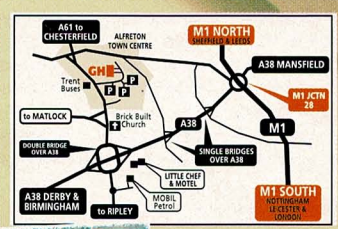

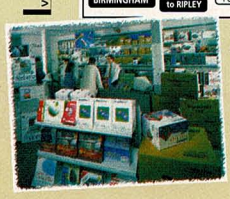

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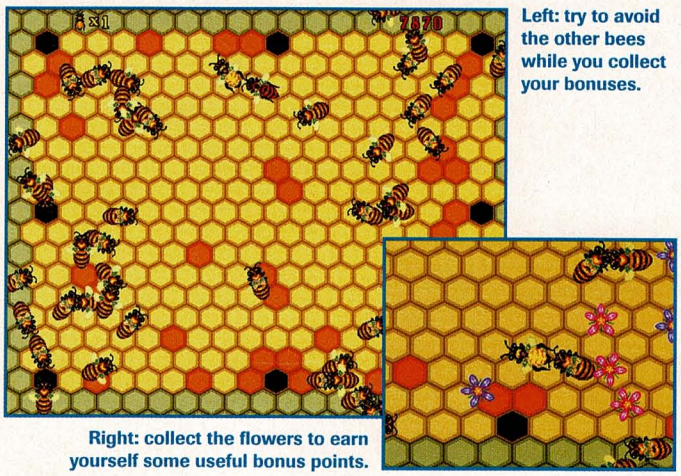
Bumbler

What is it? Five-level playable demo
Where you'll find it: Demos folder
Mac: PowerMac only
PowerMac: any
Requires: 1.5Mb of RAM, 256K Level 2 cache or PCI bus.

This semi-professional game from Dadgum Games shows just what your Mac is capable of; it's fast, fun and addictive. Fly around a hive eliminating killer bees with your stinger, while collecting flowers to earn bonus points. The controls are hard to master, but this adds to the challenge. Occasionally bonuses appear for you to collect – these give you extra points or produce a swam of small bees that fly around attacking the enemy.

To Install

Bumbler can be run directly from the Cover CD.



Left: try to avoid the other bees while you collect your bonuses.

Right: collect the flowers to earn yourself some useful bonus points.

Shareware bonanza!

What is it?
Various games, applications, utilities, System enhancers and fun stuff!
Where you'll find it: Shareware Top 50 folder
Mac: see Read Me files
PowerMac: see Read Me files
Requires: see Read Me files

To celebrate our 50th issue we have compiled our top 50 shareware games, applications, utilities, system enhancers and just plain fun stuff. There's more detail in the feature starting on page 116.

To Install

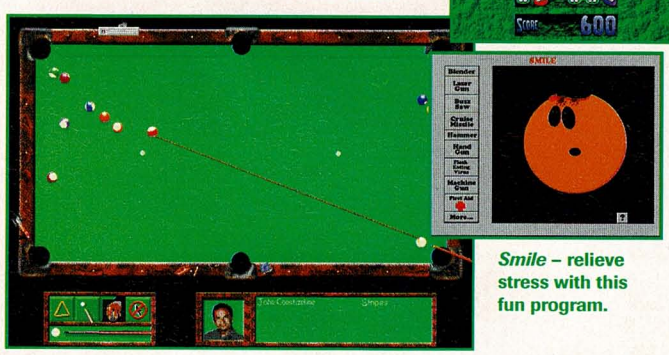
See the individual Read Me files on the disc for information about requirements, installation and use.

Continued on page 18 ➤

Foobar Versus the DEA – frantic arcade action.

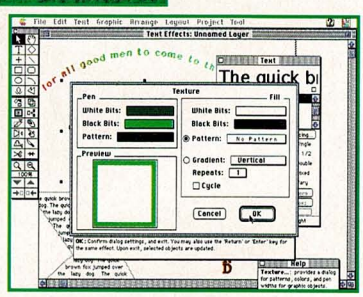
ScrapIt Pro – an improved Scrapbook for the Finder.

Skittles – an exceptional *Tetris* clone with some cute characters.



Ultimate Pool – lining up a careful cannon shot.

Smile – relieve stress with this fun program.



ShareDraw – a great drawing application, complete with layer functions.

Got a problem?

Before installing the software from our Cover CD or Floppy Disk, we recommend you always back up any important work on your hard disk. This precaution will avoid problems if it turns out that a program isn't compatible with your particular Mac set-up.

We make every effort to check our Cover Disks for compatibility and viruses, but the information here is intended as a guide only, and MACFORMAT cannot be held responsible for any damage to data, any inability to use this software or any resulting losses. So please, do make sure you back up first.

If your CD-ROM or disk is defective, return it to us via one of the addresses on the right and we will replace it. Please make sure you have followed the installation procedures described in these pages correctly, to ensure that there is a physical problem with the disk itself. Otherwise, the replacement will give you exactly the same problem!

Enclose a self-addressed padded envelope (but we'll pay return postage) with the disk or CD, and a description of the fault. Please do not return disks or CDs to the editorial office; we don't hold any stocks of them and can only refer you to the appropriate address below.

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MACFORMAT CD returns
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Dowlais, Merthyr Tydfil,
Mid Glamorgan,
South Wales C48 2YY.

Return faulty HD disks to:
TIB plc, TIB House,
11 Edward Street,
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Not compatible with Mac IIx, IIcx or SE30 Please see 7.5.5 details below.

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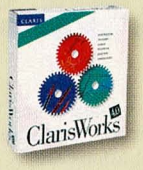

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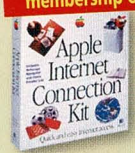

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Getting the highest return on your software investment and planning software budgets is simple with either the *AppleSoftPLUS* MP or the *ClarisPLUS* MP. That's because MP protects your software investment against the unknown costs of upgrades and updates - while at the same time keeping your business current with technology.

MP automatically provides updates to your software as new versions are released - without further cost during the two year enrolment term!

VLA Key Features:

- Individual titles cost less than normal single unit prices
- Low 25 unit minimum licences
- Mix-and-match from eligible Apple and/or Claris software
- Extra documentation and disk sets available (additional fee)
- Maintenance Programme option

MP Key Features:

- Keeps software current for two year period
- Protects software investment
- Mix-and-match from eligible Apple and/or Claris software
- Very low 25 unit enrolment minimum number

Ask for VLA or MP info-packs now!

If you would like further more comprehensive information, help or literature for any AppleSoft or Claris Software Product, please give us a call NOW.
Please see our main advert in this magazine for full conditions of sale. E&OE. All prices exclude VAT and are shown for business purchasers only. Consumers please ask for VAT inclusive prices.

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Readers' Corner

We've been flooded by entries for the Art Gallery section this issue. Among the contributions are futuristic scenes created by Ian Brookes using the fabulous *Bryce*, cartoons from Jon Deacon and an image of Future Publishing's new offices, revealed by Leigh Grimes.

■ Have you done some work that you think our other readers would like to see? Send your contributions to us at:
The Disk Editor, MACFORMAT,
30 Monmouth Street, Bath BA1 2BW.

More brilliant reader artwork – these were sent in by Jon Deacon (top) and Leigh Grimes (others). Keep 'em coming!

On the floppy

This issue's floppy disk carries a selection of the top 50 shareware programs – take a look at the feature on page 116 to find out how your favourite pieces of shareware fared.

Snood 2

What is it? shareware game
Where you'll find it: Floppy folder
Mac: any
PowerMac: any
Requires: any Mac

Can you free the Snoods? You have to fire more Snoods at those already hanging from the ceiling. Form groups of more than three and they can escape! But it's not that easy because while you're doing that, the ceiling is slowly descending, and when there's no more space, your Snoods become skulls and the game's over.

Snood 2 is just as addictive as its predecessor, and now it comes with an editor that you can use to build your own custom levels.

Free your friends the Snoods by firing more of them from a cannon. You have to be cruel to be kind!

CopyPaste 3.3

What is it? shareware Extension
Where you'll find it: Floppy folder
Mac: any
PowerMac: any
Requires: any Mac with System 7.0

This is the latest version of the Extension which adds power to your Finder's Copy and Paste functions. After installation you'll find your Edit menu extended to offer a host of useful new features, like the ability to Copy up to ten items at a time and play sounds directly from the Clipboard.

File Buddy 3.4.8

What is it? shareware utility
Where you'll find it: Floppy folder
Mac: any
PowerMac: any
Requires: any Mac

File Buddy is an indispensable utility. It tells you all about your files, reveals hidden files and helps you clean out your Preferences folder – it even makes your tea!

How to use your disk

High density floppy disks normally contain up to 1.4Mb of software, but so that we can bring you as many useful programs as possible, we use a compression utility to fit more on. This means you need to decompress the software before using our disk; this issue you'll need 3Mb of hard disk space.

We also recommend that you always make a back-up of the MACFORMAT Cover Disk, just in case anything goes wrong.

To decompress the Cover Disk contents, open the MACFORMAT 50 folder on your hard disk and double-click on the MacFormat 50 icon. You'll see a screen telling you about the compression utility we've used. Click Continue when you're ready.

A dialogue box prompts you to decide where to save the software. Choose the place on your hard disk where you want everything stored, and click Save to get hold of this issue's programs.

Plus

■ **ePress 4.0**
Make your own personalised electronic business cards with this easy-to-use application.

■ **Greg's Buttons 3.7.6**
Add some depth to your Mac's interface with this selection of 3D buttons and checkboxes.

■ **SimpleCard 2.01**
A simplified alternative to the application-builder *HyperCard*.

■ **Electric Poet 1.5**
Make your Mac wax lyrical.

■ **Insult Generator**
If you don't know what this does, then you must be a puking dismal-dreaming horn-beast! (Sorry.) **MF**

From only... £249!

If you could fit MACCELERATE! to a 100 metre sprinter...

Not all Processor Boards are Created Equal...

The MACcelerate™ range has two important features, not found on similar products, which are essential to maintain the highest standards of system reliability.

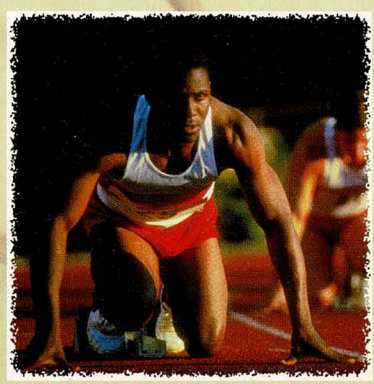
- **PROCESSOR DECOUPLING CIRCUITRY (PDC)**

Whilst the PowerPC 604e was designed to operate at 3.3 volts, Power Macintosh main circuit boards operate at 5 volts. Although the processor's I/O buffers can be run at 5 volts, this may decrease the processor's lifespan. Perhaps not such a serious problem for infrequent users, but crucial if the system is to be used regularly or even constantly (eg. servers etc.). MACcelerate™ guarantees the operation of processors at the correct voltage - as specified by Motorola.

- **PHASE LOCKED LOOP CLOCK SYNTHESISER (PLLCS)**

We all know how a Macintosh may occasionally freeze for no apparent reason. Well, that's why MACcelerate™ incorporates a Phase Locked Loop Clock Synthesiser which ensures that system synchronisation on start-up is set to a more reliable fixed frequency between the main circuit board's upper and lower tolerances.

The result... a far higher standard of operational reliability than found when using boards that don't incorporate PLLCS circuitry.



The current Olympic Record is held by Donovan Bailey who was timed at 9.84 seconds during the 1996 Olympic Games in Atlanta

Buy with Absolute Confidence...

Because we're so sure you'll be happy with MACcelerate™ you are now offered a chance you might not expect to get... now you can take up our offer to...

- **TRY BEFORE YOU BUY**

If you want to see just how fast your Mac can be with Maccelerate, call in and our Apple Authorised Service engineers will install one, with no obligation to buy, so you can feel the speed for yourself. Just phone us in advance to make your appointment.

- **MONEY BACK GUARANTEE**

We're so confident you'll be pleased with Maccelerate that it comes with a money back guarantee* so that you can try one out and know you can always return it to us if you're not completely satisfied.

- **PLUG-AND-GO**

Maccelerate does not invalidate your Mac's warranty and full product support is included.
For Motorola™ 604e PowerPC™ Performance increase to YOUR system and ALL its applications... Just 'Plug-and-Go'.

The New Olympic Record would be just 2.62 seconds!

You know what it's like...

When you're starting your Mac, loading a program or file, waiting for that Photoshop™ effect, or in fact doing pretty much anything... your computer doesn't feel as fast as it used to, does it? Its not become tired itself, but the demands of the latest OS versions and the newest applications keep getting higher and higher and slow your system down. And, if you've tried one, you'll know that today's Macs are a lot faster.

So, should you buy a new Mac now?

What is MACcelerate™?

Unlike many 'go-faster' upgrades which overspeed the standard processor, Maccelerate™ is a complete replacement for your Mac's original processor and daughterboard - it uses the new fast 604e CPU with 2 integral 32k caches. So, because the 604e is much more powerful than a 601 or 603, and by combining the extra horsepower it offers with the higher clock speeds of 150, 180 or 200MHz, you can see from the charts that...

The performance gains are massive!

Can I fit MACcelerate™ myself?

If you've never fitted an internal upgrade yourself, don't worry...

Your Mac was designed by Apple to be processor upgradeable and Maccelerate™ couldn't be simpler to fit. No soldering, no cables, no software to load (it simply requires System 7.5.3 or later), just plug Maccelerate™ in and reboot!

Simply fit to your Apple Macintosh 7300, 7500, 7600, 8500, 8550, 8600, 9500, 9600 or many compatible Macintosh OS clones and re-boot!

Or, if you prefer, Harwoods can fit yours for you.

MACcelerate™ Quality...

Designed and built by Europe's largest manufacturer of Motorola Processor cards, you can be assured of its quality and reliability.
Get the best from your Mac, accelerate it now with...

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Dealers please call for prices.

MACcelerate™ Specification, Performance and Prices

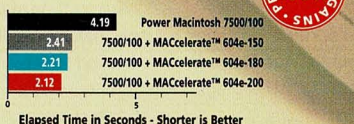
Photoshop 3.05 Gaussian Blur
Test Picture: 1181 x 1671 pixels - 24bit

PERFORMANCE GAINS 204% to 322%

Power Macintosh 7500/100 14.50
7500/100 + MACcelerate™ 604e-150 7.10
7500/100 + MACcelerate™ 604e-180 6.30
7500/100 + MACcelerate™ 604e-200 4.50
0 5 10 15
Elapsed Time in Seconds - Shorter is Better

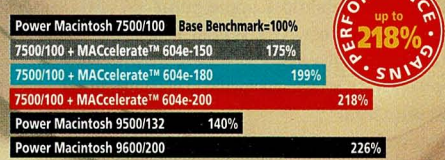
KPT Bryce 2.0 Rendering
Test Picture: 480 x 360 pixels

PERFORMANCE GAINS 174% to 198%


Power Macintosh 7500/100 4.19
7500/100 + MACcelerate™ 604e-150 2.41
7500/100 + MACcelerate™ 604e-180 2.21
7500/100 + MACcelerate™ 604e-200 2.12
0 5
Elapsed Time in Seconds - Shorter is Better

MacBench 3.0 Processor Performance Test
Test: Combined Floating Point and Processor Speeds

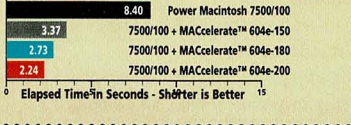
PERFORMANCE GAINS up to 218%


Power Macintosh 7500/100 Base Benchmark=100%
7500/100 + MACcelerate™ 604e-150 175%
7500/100 + MACcelerate™ 604e-180 199%
7500/100 + MACcelerate™ 604e-200 218%
Power Macintosh 9500/132 140%
Power Macintosh 9600/200 226%

Why consider replacing your 7500? Add MACcelerate for a moderate cost and almost equal the performance of the latest 9600/200!
Overall performance increases measured using the industry standard MacBench 3.0 application. Results are combined for the integral floating point maths co-processor and main processor. Longer is Better.

Photoshop 3.05 RGB to CMYK
Test Picture: 1181 x 1671 pixels - 24bit

PERFORMANCE GAINS 249% to 375%


Power Macintosh 7500/100 8.40
7500/100 + MACcelerate™ 604e-150 3.37
7500/100 + MACcelerate™ 604e-180 2.73
7500/100 + MACcelerate™ 604e-200 2.24
0 5 10 15
Elapsed Time in Seconds - Shorter is Better

MACFORMAT Classic

Earning a MacFormat Magazine Classic Award, MACcelerate recently scored a staggering 91% in their review article! MacFormat said "...the MACcelerate is your ticket to first-class performance. Excellent"!

Point your web browser at Motorola's own web site - http://www.mot.com/SPS/PowerPC/products/semiconductor/chips.html to see why the 604e is the most powerful processor available for your Macintosh desktop system.

150MHz MACcelerate™ £249 + VAT	180MHz MACcelerate™ £349 + VAT	200MHz MACcelerate™ £499 + VAT
New 604e with 2 x 32K Internal Cache	New 604e with 2 x 32K Internal Cache	New 604e with 2 x 32K Internal Cache

All prices exclude VAT and are shown for business purchasers only. Consumers, please ask for VAT inclusive prices. All Trademarks are acknowledged. Prices correct at time of going to press, E&OE.
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50 essential Mac Web pages

MACFORMAT'S guide to finding news, information, tips, gossip and entertainment for your Mac.

Whatever you want to know about the Mac, you'll almost certainly be able to find it on the World Wide Web – it's become the best Mac resource there is. The trouble is actually finding the information that you know must be out there somewhere. Here's our guide to 50 of the best places to start – it's the definitive Mac Web index.

Mac info

Name	Web address
Apple Computer	**http://www.apple.com/**

Apple's slick home page conceals a massive amount of Mac information, from Classics to PowerMacs and from publishing to games.

The Cyberdog Pound	**http://www.microserve.net/~dhughes/**

Excellent news and tips for Apple's revolutionary Internet suite (see last issue).

History of Apple Computer	**http://www.apple-history.pair.com/**

Exhaustive guide to the Mac creator – and all its Macs.

Info-Mac	**http://www.pht.com/info-mac/**

The definitive shareware download area moves to its new home. The most shareware you'll find on any Web site, so get ready to build a huge phone bill.

Mac Ammo	**http://www.planetcast.com/mac-ammo/**

Facts and figures to arm yourself with, ready for your next "Mac versus PC" argument with your mates.

MacInTouch	**http://www.macintouch.com/**

Daily news and snippets with a technical edge – the best site on the Web for feeling the pulse of the Mac-owning community.

Macintosh Networking Page	**http://www.louisville.edu/~lmlars01/indulge/**

In-depth advice on getting your Internet set-up running smoothly. Loads of tips.

Macintosh Resource Page	**http://www.macresource.pair.com/**

Informal news and updates.

Mac OS	**http://www.macos.apple.com/**

Not even Apple's official guide can keep up with all the changes affecting the Mac OS at the moment, but it offers a decent overview of the firm's plans.

OpenDoc Revolution	**http://opendoc.macintosh.net/**

Superb guide to Apple's component software system – how it works, why it's there, plus news of all the latest releases and updates.

QuickTime	**http://www.quicktime.apple.com/**

News and samples to use with Apple's video playback system, which is increasingly becoming an all-round multimedia player.

UMICH	**http://web.nexor.co.uk/public/mac/archive/welcome.html**

The UK host for a massive shareware site based at the University of Michigan, this site complements Info-Mac well.

Mac news

Name	Web address
MacSurfer	**http://www.macsurfer.com/news/**

This brilliantly-conceived site simply surveys all the other Mac news sites and offers direct links to all their latest stories – one-stop news gathering.

Clone Central	**http://henge.com/~vspina/clnews.html**

Discover the new firms joining the Mac-compatible bandwagon.

Name	Web address
InfoZone	**http://pobox.com/~infozone/**

News links, Apple stocks and shares plus more topical information.

MacWeek	**http://www.macweek.com/**

So famed for its hot inside information it's sometimes referred to as "MacLeak".

O'Grady PowerPage	**http://ogrady.com/**

The premier site for news on portable Mac developments.

Power Macintosh Resource Page	**http://207.155.25.19/pmrpage/**

News on forthcoming PowerMacs and PowerMac software.

Mac directories

Name	Web address
Cult of Macintosh	**http://www.pcola.gulf.net/~stone/mac/**

Loads of links, strong articles and a highly distinctive feel.

Everything Macintosh	**http://www.cs.brandeis.edu/~xray/mac.html**

Lengthy link list including Mac firms, user groups and newsgroups.

Mac Software Guide	**http://www.macsoftware.apple.com/**

Want to know if it's out on the Mac? Search through Apple's official guide to Mac hardware and software.

Pure Mac	**http://www.eskimo.com/~pristine/**

A techie's delight, Pure Mac offers a huge variety of useful software.

SiteLink	**http://www.sitelink.net/**

SiteLink takes a more selective approach than most other Mac link directories, offering reviews of the best Mac pages on the Web.

Ultimate Macintosh	**http://www.futurenet.co.uk/computing/macformat/umac.html**

Frequently-updated and comprehensive link list.

Well Connected Mac	**http://www.macfaq.com/**

Well-regarded directory of Mac pages and companies.

Mac games

Name	Web address
Entertaining Macintosh	**http://www.princeton.edu/~pjcreath/macgames/**

Hundreds of links to games firms and the best of their demos.

Happy Puppy's Mac Games	**http://happypuppy.com/games/mac/**

Colourful compilation of news, demos and links.

Inside Mac Games	**http://www.imgmagazine.com/**

This CD-ROM magazine also offers a site with demos and up-to-date news.

Mac Game Gate	**http://www.macgate.torget.se/**

This glossy site offers the latest news, loads of links and cheats – all the knowledge you need to enjoy your Mac gaming and more.

Mac Game Resources	**http://www.ambrosiasw.com/csmg-faq/resource-guide.html**

Massive A–Z of links to company sites and pages about the top Mac titles.

Mac Gamer's Ledge	**http://www.macledge.com/**

Often daily, frequently exclusive, the Gamer's Ledge is the best source of Mac games-news bar none. You'll also find reviews, plus plenty of links and demos.

Mac Game Zone	**http://www.wwu.edu/~n9145339/games.html**

Good all-rounder with news you may not see elsewhere, shareware and more.

Essential Web sites (clockwise from top left): MacDirectory, O'Grady's PowerPage, the Mac OS Software Guide and the Mac Gamer's Ledge.

Name	Web address
MacSport	**http://www.suzerain.com/macsport/**

If you didn't think there were enough sports games on the Mac to support a dedicated page, think again.

Name	Web address
Marathon Central	**http://www.marathon.org/**

Links to the best *Marathon* sites, including fresh levels to challenge the experts.

Mac magazines

Name	Web address
Ambrosia Cafe	**http://www.AmbrosiaSW.com/Cafe.html**

The top shareware firm's site brings together some of the best individual Mac sites around, including Apple Sauce and the Mac Pruning Page.

Name	Web address
Extreme Mac	**http://www.extreme-mac.com/**

Magazine with news, games, HTML tips, reviews and the Extreme Mac awards.

Name	Web address
MacDirectory	**http://www.macdirectory.com/**

Search through databases of Mac products, services and events.

Name	Web address
MacintoshOS.com	**http://www.MacintoshOS.com/**

Distinctive site with discussion forums, the Mac Museum and more.

Name	Web address
Mac Orchard	**http://www.macorchard.com/**

Guide to Internet programs and techniques for your Mac.

Name	Web address
MacSense	**http://www.macsense.com/macsense/**

Choose which news, reviews and updates you want to read about.

Name	Web address
TidBITS	**http://www.tidbits.com/**

Venerable weekly focusing on Mac Internet and productivity programs.

Name	Web address
Webintosh	**http://www.webintosh.com/**

Excellent selection of news, reviews and opinion.

Name	Web address
Welcome to Macintosh	**http://www.astro.nwu.edu/lentz/mac/**

This enduring site offers distinctive areas on games, programming, beginner's questions and much more.

Mac tech

Name	Web address
Complete Conflict Compendium	**http://www.quillserv.com/www/c3/c3.html**

Thorough listing of Mac software bugs and how to fix them.

Name	Web address
Developer World	**http://www.devworld.apple.com/**

News and technical briefings aimed at developers – but handy for anyone.

Name	Web address
MacAssist	**http://www.hoppingmac.asan.com/macassist/**

A technical support line on the Web, with loads of valuable advice.

Name	Web address
MacFixIt	**http://macfixit.pair.com/**

Mac owners share their problems – and how they solved them – with you. Discover bugs on new products before they affect your work.

Name	Web address
Mac Pruning Page	**http://www.AmbrosiaSW.com/DEF/**

A comprehensive guide to the System Extensions you need, and the ones you could do without.

Name	Web address
Technical Information Library	**http://til.info.apple.com/til/til.html**

Everything you ever wanted to know about how your Mac works lies inside Apple's invaluable resource.

Name	Web address
Troubleshooting Tips	**http://www.hoppingmac.asan.com/assistmalm/home.htm**

Sound advice on how to stop your Mac crashing, and other tips.

MACFORMAT on AOL

AOL might be better known to you as America Online, one of the US's top service providers. Now it's bringing its exclusive Internet pages to Macs in the UK, and its special CD-ROM (with UK copies of MACFORMAT only) gives you the chance to try the service for yourself.

Once you've installed the software (see disc for instructions – you'll need a modem or other Internet connection), you'll be able to explore the different sections of AOL, including news, computing and entertainment.

The latest addition to the AOL family of services is... us! MACFORMAT has an area coming to AOL's British service. If you use the software supplied on the CD-ROM, you'll automatically go to the UK area, but you can still reach it through AOL's International page if you live outside the UK. To visit the MACFORMAT AOL site, simply enter the Keyword MacFormat.

MACFORMAT ON AOL will bring you five distinct sections, offering every Mac owner something of interest, whatever you use it for. As it evolves, MF ON AOL will bring you news, reviews, software to download, a comprehensive buying guide and more.

CREATIVE CAFÉ | FAMILY ZONE | MAC OFFICE
ON-LINE WORLD | MAC WORKSHOP | THE FINDER
MARKETPLACE

MACFORMAT ON AOL will bring you seven regularly-updated sections, including areas specially for creative artists, multimedia and games users, business users, Internet users and anyone who's ever grappled with the Mac System. You'll also find search aides and a section for reader ads and subscription information.

FutureNet '97

FutureNet gets a new look and exciting new areas from Monday 14 April. Don't miss out!

It's already Europe's busiest commerical site, with over 500,00 registered users; now Future Publishing's Web site takes another step toward world supremacy with a fresh new look and a new attitude for 1997. The main FutureNet Web address remains http://www.futurenet.co.uk/

Sporting sleek new design, FutureNet '97 is divided into distinct sections, with something for everyone. For example, MacWeb will bring you the latest developments on the Mac scene. Each site has its own home page address; you'll find MacWeb at

From Monday 14 April, MacWeb will give you news, reviews, shareware, a buyer's guide and more.

http://www.macweb.co.uk/

Other sites you'll find on the all-new FutureNet include:

- **MusiciansNet (http://www.musicians-net.co.uk) – host to Future's music magazines, including *Future Music, The Mix, Total Guitar, Bassist* and *Hip Hop Connection.***
- **GameNet (http://www.gamenet.co.uk) – along with Future magazines like *Edge, N64* and *Official PlayStation,* you'll find coverage of Mac releases.**

You'll find 15 themed sites plus daily news on the new FutureNet, and it all goes live on Monday 14 April.

Apple looks healthier but 2,700 jobs to go ■ Renamed Mac OS 8 set for July ■ Games publishers take on the world ■ News Editor: Richard Hill.

MACFORMAT NEWS

Apple renews its mission

A symbol of Apple's renewed focus on its Macintosh core business, the Twentieth Anniversary Mac will be released this August. Limited to 12,000 units, the machine uses a 250MHz PowerPC 603e chip and will cost around £5,750.

Apple has concluded a dramatic recasting of its role with a series of announcements on the systems and technologies which it intends to develop in the future. The firm is paring itself back to its core role of designing and making computers and operating systems to run on them – abandoning or curtailing many of the projects it has been working on over the past few years. It is to lose a quarter of its workforce in the process.

The restructuring comes after reports of Apple's continuing financial difficulties, most recently seen with its $120 million (£74 million) loss in the three months up to Christmas 1996. With the company essentially spending more money than it earns, Apple Chief Operating Officer Gil Amelio has been left with little choice other than to cut its spending.

Mac OS changes

Amelio and his team have spent the last few weeks assessing Apple's role in the computer industry and establishing which projects it needs to maintain to succeed in that role.

Both hardware and software have undergone careful evaluation to see which technologies should be developed. The list (see the "New face of Apple" box) will arouse debate and controversy, but what is not in doubt is that Apple's focus is on supporting only successful industry standards (like Java and its

The new face of Apple

Apple is now firmly focused on making computers and operating systems. Here's how you can expect the firm to shape up in the next few months:

Computers and hardware

PowerMacs
The Power Macintosh brand is now Apple's sole desktop machine as Performas are dropped – but it's only a name-change. Expect exciting new home models in April.

PowerPC Platform
Work on the Mac OS for PPCP continues; the new machine won't need any customised chips, unlike the current Mac.

Pippin
Not abandoned, but Apple will be less involved with the Net and multimedia console – look to Bandai to lead Pippin forward.

Newton
No change for Apple's hand-held device division, but a sale still remains a possibility.

Imaging equipment
Business as usual for Apple printers, scanners and monitors.

Operating systems

Mac OS 8
The July release of the new Mac OS will show what you can expect of Rhapsody.

Allegro
The Mac OS's next major upgrade (one you have to pay for, in other words) will now appear in mid-1998 – customers didn't want to shell out for upgrades twice a year, says Apple.

Sonata
The following major upgrade in turn moves back to 1999.

Rhapsody
Rhapsody firmly stays on course for a raw version this year, followed by a more refined version in early 1998 and a final mid-year on-sale date.

Software technologies

Getting the green light...

These technologies will continue to grow under the Mac OS, and will also appear in Rhapsody:

HyperCard
Now set for closer integration with QuickTime.

QuickTime
The forthcoming version 3.0 will add interactive sprites.

QuickTime VR
QTVR 2.0 (out soon) adds animation and video capabilities to its virtual environments.

QuickDraw 3D
Fast being accepted as a universal standard for 3D scenes.

Language Kits
These will give Apple an advantage as massive opportunities start to open up in markets in China and India.

Scripting
AppleScript stays in the Mac OS, and there will definitely be some form of scripting in Rhapsody.

... The amber light...

Mac OS 8 and later versions will support these technologies, but they won't receive anything more than minor bug fix updates. Developers are still able to use them in their products – but whether they will is debatable.

Cyberdog
Innovative Net browser gives way to *Netscape* and *Internet Explorer*.

Game Sprockets
Helping new developers write games more quickly, Sprockets had been winning games developers over, so their suspension is bound to cause a stir.

OpenDoc
Apple's Geurrino de Luca: "The phenomenal support Java has attracted hasn't gone unnoticed."

Open Transport
Mac OS will use this communications system, but Rhapsody will employ industry standards like TCP/IP (used for sending data over the Net).

Speech technology
Work on speech recognition and converting text to speech wasn't catching on in the market.

Development
Many other firms, notably Metrowerks, write Mac development tools, so *Mac Programming Workshop* and *MacApp* are expected to stay in a frozen state.

... And the red light

Apple Media Tool
The multimedia authoring program is not a big seller and there are dozens of alternatives already easily available.

Video conferencing
Simply too many rival products to justify the development expense.

AIX
Future servers from Apple will rely on the Mac OS and Rhapsody, rather than this arcane operating system.

QuickDraw GX
Some GX concepts may appear in Rhapsody's combined screen-and-output display system, if Apple can persuade Adobe.

own QuickTime), thus placing the Mac OS at the heart of the industry. The most dramatic casualty is perhaps OpenDoc, Apple's component software system, which was finally starting to garner support after a long gestation (see the feature in MACFORMAT 49).

In a surprise move, Apple has also announced that the Mac OS release set for July (codenamed Tempo) will be called Mac OS 8. See "Mac OS 8 unleashed in July" on page 24.

Apple has also relaxed its schedule for the subsequent releases, codenamed Allegro and Sonata – major upgrades will now appear on an annual basis. Apparently many customers, especially in business, criticised Apple's previous plans to offer full upgrades twice a year as unnecessary, confusing and expensive. As part of the new strategy there will also be two free minor updates scheduled every year, to fix any minor bugs and to update technologies like QuickTime.

Apple president Gil Amelio – forced into tough decisions to get Apple on track for a prosperous future.

Computer changes

Apple's plans for hardware have barely changed. The most dramatic move in this area is to drop the Performa name, which was introduced to distinguish its home range from professional machines. This does not, however, mean the end of Apple in the home. In fact, new machines are scheduled for an April release. But the firm's research showed that potential customers didn't understand the Performa branding and assumed they were much weaker machines than they've actually become. Apple's Geurrino de Luca commented: "People were asking themselves, 'Should I buy a Performa or should I buy a Mac?' "

All desktop Macs will now come out under the Power Macintosh label, and Apple will highlight specific solutions for home users in the same way it's done for current machines like the Family Mac and the Home Office. De Luca added, "We're not abandoning any of these customers: we're going to give them better products."

Cut-backs

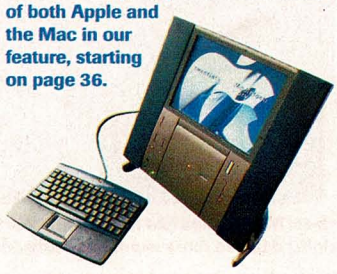
The real savings, though, have to come from spending less on the day-to-day running of the company. The process started in February as Amelio restructured Apple in readiness for the lay-offs to come (see News in MACFORMAT 49). Moves like bringing all of Apple's marketing departments under one division enable the firm to shed 2,700 of its 11,000 full-time staff, along with ending contracts for 1,400 of 2,400 part-time or temporary workers. Just after the announcement, Amelio added, "It's painful to have to lay off people who have worked so hard in the past year to turn Apple around."

Amelio and his financial team reckon the moves will save over $500 million in the next year, bringing Apple's spending in line with its expected earnings in the near term. The results for the first three months of 1997, though, will be badly affected by the cost of buying NeXT Software (over $300 million) and lay-off expenses (expected to be around $155 million).

Apple is looking at a minimum $450 million loss before it even begins to calculate its losses on day-to-day operations, the area now being slashed. But the firm still has a massive cash reserve which will enable it to weather the storm.

Apple at 21

Discover the past, present and future of both Apple and the Mac in our feature, starting on page 36.



OS 8 unleashed in July

Apple has announced that the next release of the Mac OS will be called Mac OS 8.0, as a sign that some major changes have been set in place for the system. Previously known by its codename Tempo, the new Mac OS will appear in July, with an international version, suitable for use in the UK, appearing two months later. As with Mac OS 7.6, Apple will charge for the software.

The Mac OS 8 name reflects the debt Tempo owes to Copland, the operating system rewrite Apple had earmarked as its biggest revamp of the Mac OS in years. This, too, was also announced last year as Mac OS 8, but within months Apple abandoned it in favour of Rhapsody, a more powerful system based on NeXT Software's OpenStep.

Re-8
Introducing Mac OS 8

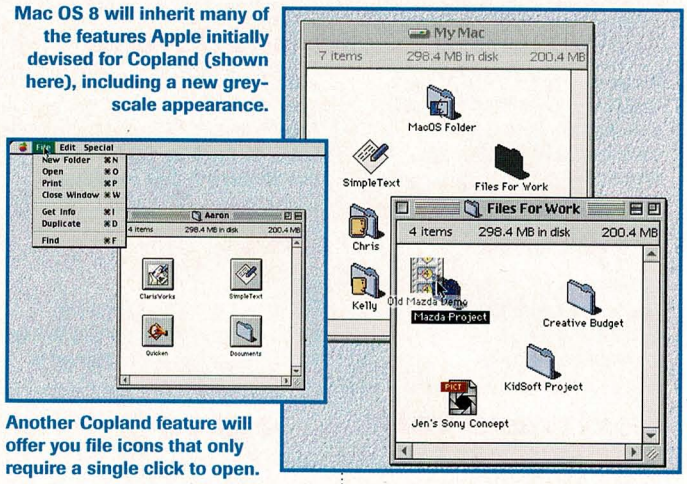
The work on Copland wasn't completely in vain – Apple is incorporating many of its features into Tempo, including a new Finder which will enable you to perform multiple tasks at once. For example, you can start copying files, then empty the Wastebasket or load a program without waiting for the copy to finish.

Tempo will also give the Mac a dramatic new look, with bevelled grey dialogue boxes and menus. This will form the starting point of Rhapsody's appearance, although further changes will accommodate Rhapsody's advanced features.

Mac OS 8 will continue the trend set by Mac OS 7.6 to work only on faster Macs: you'll only be able to use it if you have a PowerMac or a 68040-chip-based Mac.

More choice than ever

Mac OS 8 will work not only on conventional PowerMacs, but also on the new PowerPC Platform – machines using the same low-cost components as rest of the computer industry, rather than the customised parts the Mac uses today. It means that you'll be able to buy a computer running Mac OS 8 without having to know if it's a PowerMac or a PPCP machine – you can just buy the model that suits you. Before that release, though, the PPCP version of Mac OS 7.6 should appear in June, enabling patient computer makers to release the models that have been waiting in the wings for months.



Mac OS 8 will inherit many of the features Apple initially devised for Copland (shown here), including a new grey-scale appearance.

Another Copland feature will offer you file icons that only require a single click to open.

Games firms team up for the Mac

Some of the Mac's most dedicated games makers are banding together to boost the Mac's status as a games machine. The Mac OS Entertainment Software Association (MESA) will promote the Mac to shops and potential customers. MESA's formation should help the PowerMac cement a growing reputation as the fastest, most powerful device for games you can buy, thanks to the blistering speed of the PowerPC chip.

(Thrall)
"Baal'al descended to the flooded, rusting halls of Sl'anwon and under the sea there took no breath for nine days, searching the ruined palaces and temples of the Trow for the dream of unlife."

Great Mac games like *Myth* (top), *WarCraft II* (above left) and *Descent* (above right) deserve more exposure – now MESA's here to make sure they get it.

The MESA membership includes the Mac's most successful publishers, including Bungie, MacPlay and MacSoft. These firms and others will use their combined strength to pressure shops for more shelf space and make buying by mail order easier. Despite having an estimated 60 million users and a wealth of top-quality games, the Mac still suffers from a perception among retailers that it has little to offer and that there is no interest from the public in Mac games.

MESA will be concentrating its efforts on the United States at first, but its efforts promise to raise the clout of the Mac games fan worldwide. MACFORMAT wishes MESA all the best in its endeavours.

MacSoft expands

The US-based publisher MacSoft is certainly happy with its current Mac game sales. After recently scooping the distribution rights for GT Interactive's mighty line-up of furious action shoot-'em-ups, including the enormously popular *Doom*, *Hexen* and the Spring release *Quake*, it's now signed a new deal with the respected developer Spectrum Holobyte.

Spectrum's games appear in the UK under the MicroProse brand and include *Civilization II*, flight simulator *Falcon 4* and epic fantasy *Magic: the Gathering*. These titles will now be appearing on the Mac under the MacSoft banner. The firm hasn't announced release dates as yet, but we'll keep you posted.

Fighting for the Mac!

- **Blizzard Entertainment (maker of *WarCraft* and *WarCraft II*)**
- **Bungie Software (the *Marathon* series, *Myth*)**
- **Changeling Inc (*Amber: Journey into Beyond*)**
- **Graphic Simulations Corps (*F/A-18 Hornet*)**
- **LucasArts (*Dark Forces*)**
- **MacPlay (*Descent, Tempest X*)**
- **MacSoft (*ZPC* – also publishes GT Interactive's *Quake* and *Hexen*)**
- **ParSoft (*A-10 Attack*)**
- **StarPlay (*Souls in the System, Alley 19*)**

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What do *Infini-D*, *SoftWindows* and *After Dark* have in common? Plus: classic adventuring in *Broken Sword*, deep thought in *Sophie's World* and news from MetaTools. Compiled by Richard Hill and Jane Bentley.

Infini-D 4.0

Ever since Apple, IBM and Motorola introduced the PowerPC processor in 1991, the Mac has gone on a rollercoaster ride, getting faster and faster every few months. There seems to be a new, more powerful, "speed-bumped" PowerMac model released or announced almost every day.

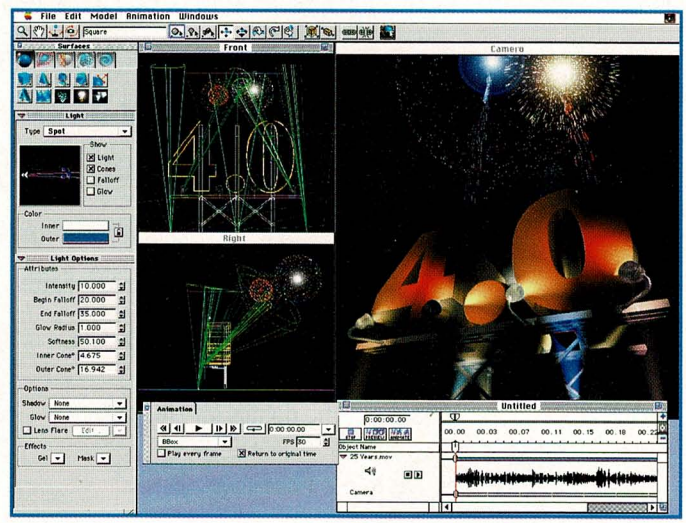
It's hard not to feel you're getting left behind, even if your Mac is only a year old. But one result of this ever-increasing power surge is that the Mac is more competitive than ever at the professional level, with PowerMac software becoming able to cope with more sophisticated demands. Specular's flagship 3D program *Infini-D* is a case in point: after boosting its abilities to industrial-strength level with previous upgrades (we gave *Infini-D 3.5* an 85% rating in MACFORMAT 42), the firm is embracing new directions with the forthcoming version 4.0.

The new *Infini-D* imaginatively merges its 3D abilities with pro-level video features, appealing to new audiences.

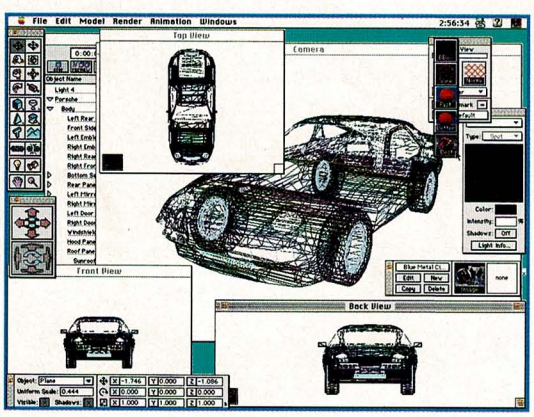
Faster rendering

Infini-D's central features have been heavily revamped once more, with a new interface design the most immediately obvious change. Rendering – the process of adding texture and lighting to your wireframe models – is at least 30% faster than in the current version 3.5, thanks to a completely new rendering system that Specular created while working on a new video program codenamed *Alchemy*. The *Alchemy* engine also enables you to change objects after they've been rendered, stretching and pulling them into new forms without rendering them all over again.

Infini-D 4.0 also offers powerful animation effects like streams of particles that will cascade or explode in any direction, making it easier to simulate effects as diverse as fireworks, rain or dust floating in the air. You could also add an atmospheric light beam to your particles, thanks to the new visible spotlight beams and flares.



Specular's *Infini-D 4.0* adds new 3D abilities, including a feature enabling you to create particle animation like the fireworks shown here.



***Infini-D 3.5* (shown here) combined powerful modelling features with simplicity; now *Infini-D 4.0* revamps the interface and adds extra speed.**

Video features

The real *Infini-D 4* adventure, though, begins with its new-found video capabilities, also brought in from the *Alchemy* project and found more typically in video-compositing packages like Adobe's *After Effects*. As with many 3D programs, you can build up frames of 3D scenes to form an animated sequence, but here you can play this over a video clip. You can preview your 3D sequence as a wireframe, playing on top of the video before rendering the models and saving the entire sequence. If you're a professional broadcaster, it means you can create tumbling logos (such as captions or title sequences) and blend them into your footage with little fuss. Take a look at the opening of a BBC news report, for instance, for a good example of 3D and video mixed together.

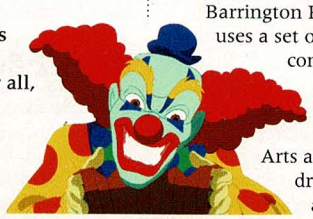
Specular has added more video professional features, like colour correction and the ability to preview a sequence at TV-screen resolution, to open up a whole new market – one it aims to crack wide open when the *Alchemy* project eventually emerges fully-formed.

■ Price: TBA. ■ Out: April.
■ Contact: Gomark on 0171 731 7930.

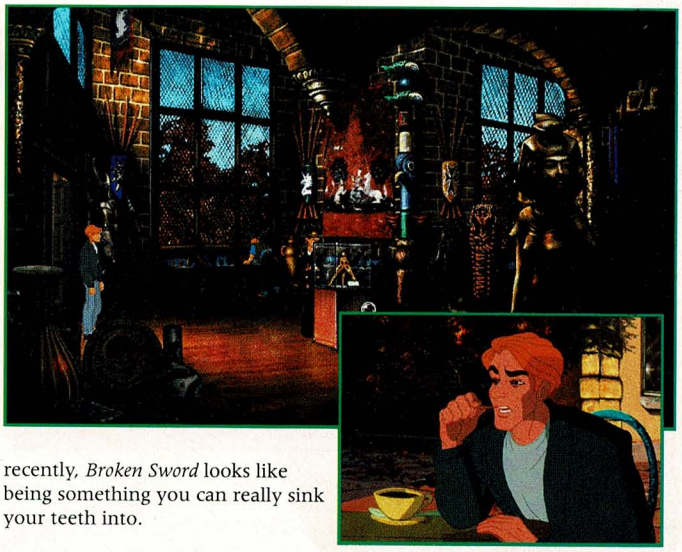
Broken Sword

The year 1107 has more significance than simply being the first promised shipping date for Copland: it also saw the establishment of the Knights Templar, a holy sect which established the precursor to the modern banking system, dealing with currencies and cheques. Two centuries later, paranoia about the extent of the Templars' power triggered the Spanish Inquisition, which hounded the Knights out of existence for all their might. After all, nobody expects the Spanish Inquisition.

The Templars took many secrets to their graves, though, and it's the sect's enduring mystery which provides the rich backdrop for Virgin Interactive's latest adventure *Broken Sword*. As a tourist in Paris, you're drawn into a dark underworld with connections that can be linked back to the days of the Templars' formation.



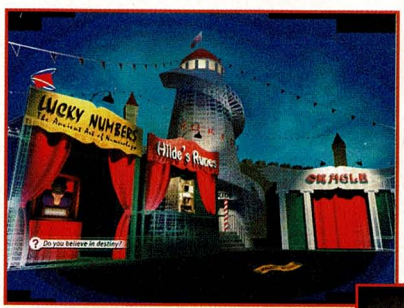
Broken Sword's plot unfolds using beautifully-produced cinematic animation and a music score specially composed by *Inspector Morse's* Barrington Pheloung. It also uses a set of controls and conventions that will be familiar if you've ever played any Lucas-Arts adventures. After a drought of decent adventure games recently, *Broken Sword* looks like being something you can really sink your teeth into.



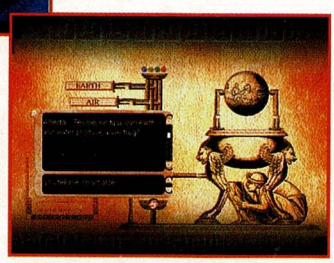
■ Price: TBA. ■ Out: April.
■ Contact: Virgin Interactive on 0171 368 2255.

Broken Sword **uses delightful animation and evocative locations to plunge you into a real thriller.**

Sophie's World



Meet the greatest philosphers of the ages and ponder over puzzles in the engaging CD-ROM of *Sophie's World*.



Author Jostein Gaarder's *Sophie's World* is a literary phenomenon, selling five million copies around the world. Now its combination of entrancing fiction and complex philosophy is coming to your Mac, with a new CD-ROM from the award-winning Multimedia Corporation (the developer behind *3D Atlas* and *ABC of Animals*).

Sophie is a young girl seeking reason for her existence, leading to a meditative journey which relates the history of thought and philosophy. The CD brings the novel to life by providing a cross-linked reference section to tomes of philosophical learning, as well as puzzle-solving sections to draw you through the disc's narrative.

Sophie and her tutor Alberto Knox are the central characters, bringing human elements of friendship and sharing to their quest for answers. Virtual characters enable you to interact with the program, asking questions or responding with the right statements to their philosophical challenges.

The marrying of entertainment and multi-layered discourse promises to make *Sophie's World* an irresistible avenue into the study of the really big questions we've pondered as we've sat in front of our Macs... Why are we here? Where do we come from? Do we have souls? What is the true significance of a Type 11 error?

■ Price: £39.99. ■ Out: April.
■ Contact: Macmillan Interactive on 0171 881 8304.

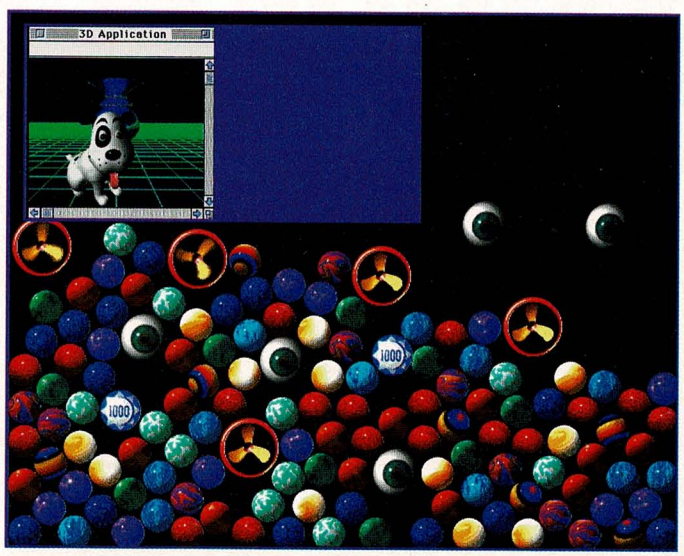
After Dark 4.0

There was a time you couldn't walk round an office without seeing winged toasters fluttering sedately across idle computers' monitors. The surreal sight remains the most famous example of a screen saver, an automated animation which kicks in if you don't use your Mac for a few minutes. "Flying Toasters" is in fact one of the themes within the much-loved time-waster *After Dark*, which returns with new sequences in version 4.0.

The £19.99 package adds 20 new themes to its selection of classics like the toasters and our own favourite, "Bad Dog" (now in 3D!). Now you can meet the pretentious "Art Critic" and the insanely competitive "Hula Twins", or even visit the colourful "Psycho Deli".

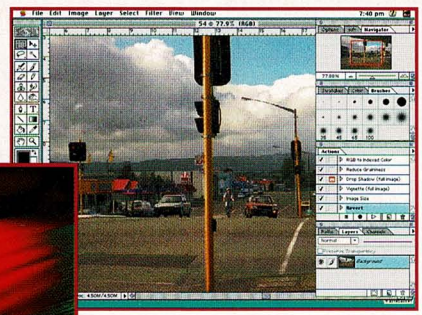
After Dark 4.0, however, takes the art of the screen-saver into new realms of, er, usefulness. If you have an Internet link, *After Dark* can also connect to the World Wide Web to collect the latest news headlines while you work, then present them on-screen when you take a break. News sources include the *Wall Street Journal* and *Sports Illustrated*.

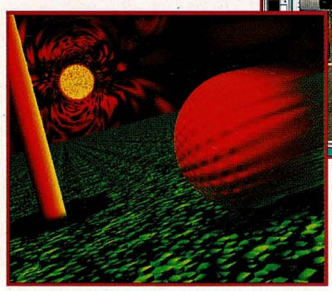
■ Price: £19.99. ■ Out: now.
■ Contact: BMG Interactive on 0171 384 5000.



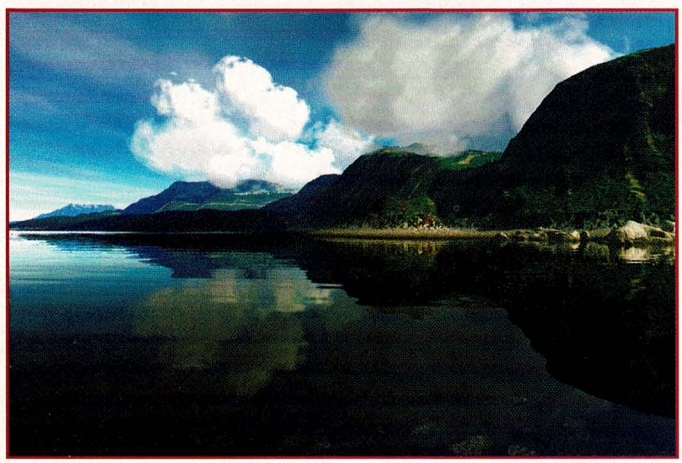
After Dark 4.0 **takes the art of the screen saver to new heights – you may never start work ever again once you start watching these marbles tumble.**

MetaTools accessories





Use *KPT Actions* with your image editing tag-team of *Photoshop 4* (right) and *Kai's Power Tools 3* (below) to automate the routines you perform most often.



The *Bryce 2 Accessory Kit* enables you to create better landscapes and other 3D environments, with plenty of models and textures, plus expert tips.

MetaTools has certainly had a busy time of it lately, with its planned merger with fellow graphics leader Fractal Design (see News in MACFORMAT 49) the most visible sign of its rapid expansion. Pausing for breath between the huge success of *Kai's Power Goo* and the release of companion program *Soap*, MetaTools returns to grass roots with accessory kits to complement a couple of your favourite MetaTools programs.

KPT Actions

If you use Adobe's *Photoshop* regularly, you may also have invested in the brilliant MetaTools plug-in *Kai's Power Tools 3*, which adds a range of powerful features and effects to the leading image editor. With the new *Photoshop 4* (rated a Classic 92% in MACFORMAT 47) adding the ability to run scripts, *KPT Actions* extends that scripting action to *KPT 3*.

Photoshop's own **Actions** palette – the heart of its new automated functions – enables you to store a sequence of effects you've applied to an image, then apply that to any other image by selecting the script from the palette. The addition of *KPT Actions* simply means you can add effects applied through *Kai's Power Tools 3* to your sequence. You can create smooth blends in *KPT's Gradient Designer*, make textured spheres in *Spheroid Designer* or set up animations through *Interform*. See our *KPT 3* review in MACFORMAT 33 for more ideas. If you missed either this or our *Photoshop* review, turn to page 144 for more details on how to obtain copies.

The *KPT Actions* CD-ROM includes over 100 ready-made scripts that you can apply straight away or modify to suit your own needs – you'll need both *Photoshop 4* and *Kai's Power Tools 3* to use it.

Bryce 2 Accessory Kit

Bryce 2 is an excellent 3D tool, specially designed for creating stunning landscapes – although it's capable of much more. (We gave it a Classic-rating 93% in MACFORMAT 38.) The £58 *Bryce 2 Accessory Kit* gives you a set of ready-made models and textures to help you make better-looking images much more quickly.

The *Accessory Kit* CD-ROM includes over 100 textured models ready to drop straight into a *Bryce* landscape, 150 textures and 50 environmental effects, including some spectacular skies. You'll also find tips and tricks guides, light gels for atmospheric effects and even real-world data drawn from satellites. You'll need to have a copy of *Bryce 2* to use the *Accessory Kit*.

■ Price: £57.58 each. ■ Out: now.
■ Contact: Principal Distribution on 01756 704000.

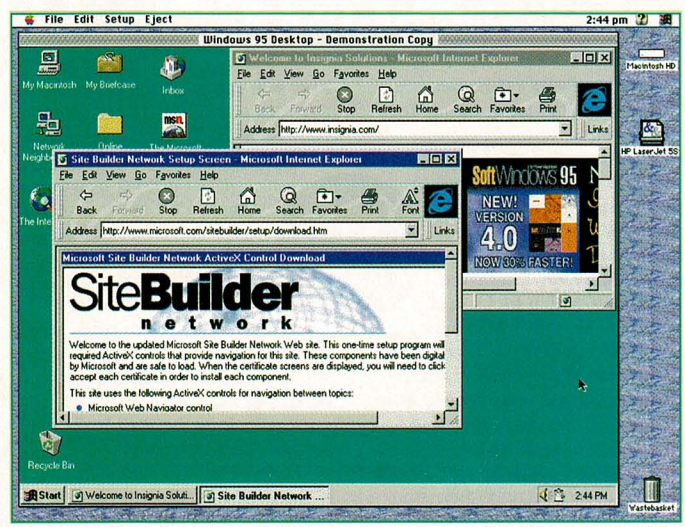
SoftWindows 95 4.0

Your Mac isn't limited to running only Mac software – you can adapt it to run programs written for PCs, as we showed in our DOS-compatible feature in MACFORMAT 45. While DOS Compatibility cards literally place a PC inside your Mac, Insignia offers a lower-cost method by enabling your Mac to emulate a PC running *Windows*.

Moving to version 4.0, Insignia's *SoftWindows* emulator is significantly faster (up to 30%, Insignia says). With PowerPC processors accelerating to over 300MHz this year – 500MHz in some cases – *SoftWindows* could come into its own as a program that runs *Windows 95* faster than any PC.

SoftWindows 4.0 also offers far more uses through the simple addition of Microsoft's *Internet Explorer* Web browser. By using the supplied PC version of *Explorer*, you can download and use Internet files designed for use on PCs. (Your Mac can download the files, but you're only likely to able to use text and image documents.) The addition of *Microsoft Office Viewers* also enables *SoftWindows 95* to open more types of PC document. The combination should prove especially useful if you use a Mac in a business which also uses PCs, while PowerBook users will also be able to share information with clients more easily. *SoftWindows 95 4.0* also adds software drivers for both networking and file sharing. This will really help its business customers.

■ Price: £387. ■ Out: now.
■ Contact: Insignia Solutions on 0800 667706.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The improved *SoftWindows 95* makes using a Mac in a PC-based office easy.

Mac OS 7.6

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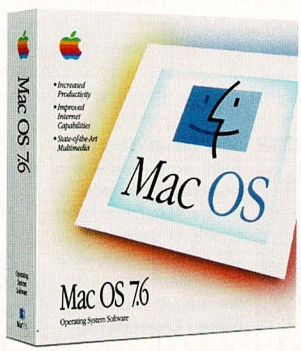
Mac OS 7.6 unites many of the recent technologies available in the industry today with additional features and functionality, to offer customers improved productivity, efficiency, and PC compatibility. Specifically, **Mac OS** 7.6 embodies the latest version of OpenDoc component software technologies, integrated Internet functionality and connectivity, and Apple's advanced multimedia technologies (QuickTime Media Layer), as well as offering enhanced support for Windows files and media. **Mac OS** 7.6 also improves performance in key areas such as printing and networking. Finally, **Mac OS** 7.6 installs easily, so you get all the benefits of the latest, greatest system software innovations quickly, while maintaining compatibility to existing System 7 based files and applications without modification.



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Mac OS

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Twenty-one years of Apple! What do you think it should do next? Where do you think the Macintosh is heading? Write and share your thoughts on Apple, the Mac OS or anything Mac-related – including MACFORMAT and what you'd like to see in our *next* 50 issues – and if your letter is published here, you'll win your own MACFORMAT binder. (Or you can turn to page 144 and order one, but then we'd have to do without your advice on what to do...!)

Share your views and win a MACFORMAT binder. Write to: Alex Summersby, AppleTalk, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW, e-mail macformat@futurenet.co.uk

Call to arms

Calling all Macintosh Fans! The nay-sayers have the day, "the Mac is dead" and Apple is going quietly into that dark night. Or so it would seem, considering the complete lack of credible or splashy *good* news about Apple and the Macintosh as a computer.

The answer? Advertise! Not just vague mutterings about the power of creativity, etc etc. No, if Apple really knew what kind of following it had and to what length they would go to preserve their favourite OS for years to come, *this* is what it would do:

Apple Computer Inc should take a small percentage of its yearly advertising budget and offer it in several lump sums to winners of a national – no, *worldwide* advertising competition. It should advertise the competition itself with all the hype of a Hollywood blockbuster movie and keep everyone anticipating the viewing of the entries. It could collage entries from the youngest Mac fans or make full length commercials from the most polished ones. And every one of them would scream the whys and wherefores of Macintosh superiority. The claims could even be absurd, with a joking disclaimer that the views expressed were those of Mac fans and not necessarily the company's. Considering the zeal of Macintosh users and the fact that the majority of Macs are used in the graphics and multimedia trade, the entries would likely range from the sublime to the ridiculous.

If you think this is a good idea, if you'd kill for an opportunity to contribute to just such a competition, then barrage any and every Mac organisation and specifically Apple itself with this idea, and maybe they will start listening to their loyal users and even be heartened to know that we're out here, we care, and we want to let the rest of the world know just what they're missing...

G Weaver
"Macintosh user and frustrated fan," via FutureNet

And so say we all! Apple UK's General Manager, Jon Molyneux, emphasises in our interview this issue (see page 40) that Apple is keen to "give fans ammunition" in its advertising, and plans a "harder-edged" ad campaign soon. Any other thoughts on what you'd like to see from Apple, or indeed the clone-makers?

The same, only more so

I was interested to read your article in MACFORMAT 48 about storage media, in particular DVD. I gasped as it told me that one disc may hold up to 4Gb of data. I had to pinch myself when I read that it *could* hold as much as 17Gb. This led my brother to ask me, "Will that mean the games are going to be better?" I sighed. Well, they said that about CD-ROMs, didn't they? The more likely story is that rather than a whole host of new, exciting and original games, we will now be treated to even more "full motion graphics, interactive, unique, point and click interfaces, artificial intelligence, with superb CD (or DVD) quality sound," and even less gameplay. Obviously there will be the odd gem of a game from time to time, but will it be worth the price increase we are likely to see? Let's hope so.

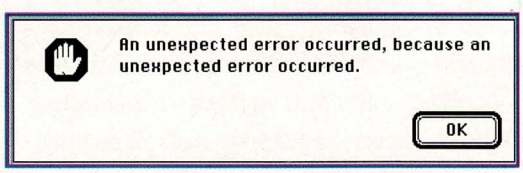
Daniel Binks
via FutureNet

It's not just the price of the games either, but the increased hardware requirements to run them – this issue, we review an admittedly impressive 3D adventure game that requires a 3D card for the full virtually real experience. And you thought it was tough enough that most new games are PowerMac-only...! What do other readers think?

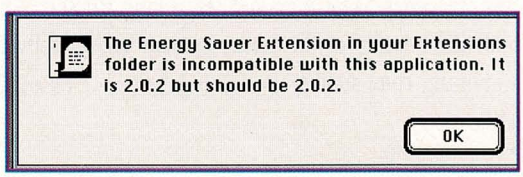
Lagging behind?

I'm writing to say that ugrading is a terrible disease. I used to have a Quadra 700 8/80. I still have it but am on the border of splashing out on one of those 180MHz black Performas. Why? I'm not sure! I have fallen prey to LAGS (Latest And Greatest Syndrome). At the moment I've upgraded to a 20/

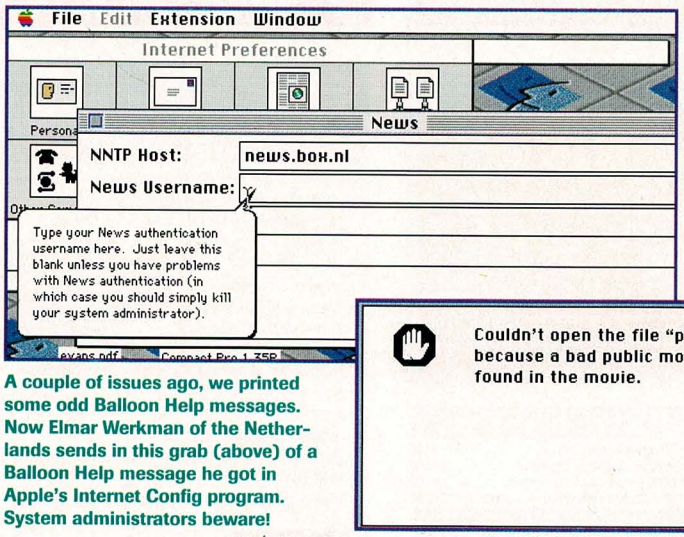
Silly Things Your Mac Says, number 483 in a seemingly endless series: left, from Jerry Eberts of Vancouver, BC, Canada. Has your Mac given you a silly message? Grab it by hitting [command] [shift] 3 and send it in on disk, or by e-mail with the word "Silly" in the subject line.



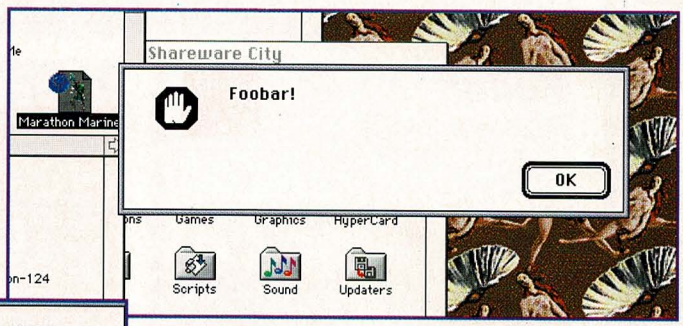
Michael Varrenti of Dunkeld, Victoria, Australia sends in the grab above – incontrovertible logic, or more evidence that your Mac actually generates error messages just by randomly combining phrases from some database?


The Energy Saver Extension in your Extensions folder is incompatible with this application. It is 2.0.2 but should be 2.0.2.
OK

Right: time for an upgrade...? The grab is from Justus Paiewonsky in Norway, via e-mail.


File Edit Extension Window
Internet Preferences
News
NNTP Host:
news.box.nl
News Username:
Type your News authentication username here. Just leave this blank unless you have problems with News authentication (in which case you should simply kill your system administrator).
Couldn't open the file "pulpfi04" because a bad public movie atom was found in the movie.
OK

A couple of issues ago, we printed some odd Balloon Help messages. Now Elmar Werkman of the Netherlands sends in this grab (above) of a Balloon Help message he got in Apple's Internet Config program. System administrators beware!



Dawn and Richard Volkman of Madison, WI, USA, were keen to try *Marathon Marine* from the MACFORMAT 42 Cover CD, but it needs an application called *Talking Mouse* to use it, and if you don't have that you get the helpful message above...

(Left) Henry Masek of Minneapolis in the US got this silly message "trying to open a Moov file of an out-take from the movie *Pulp Fiction*. But," he asks, "how did it know it was a bad public movie?"

1,104 configuration, got a nice big monitor and a modem. Do I really need 1.1Gb of hard disk space? Why is Apple forcing its beloved customers into buying machines they don't really need?
Rennie Morrocco
via FutureNet

Outrageous, isn't it, the way they keep bringing out desirable new machines? I mean, I'm quite inexplicably pining after a PowerBook 3400, when I've got a perfectly serviceable Mac Plus at home. Can't think what's come over me.

System 8 Wish List

There are a couple of things I'd really like to see in the next update to the Mac OS (7.7/8.0/Copland/NeXT, etc.)

Often when a removable disk (CD-ROM, floppy, Zip etc) has been mounted and used for a while, you want to get it out in order to use another disk. However, you may still have applications or documents on the disk open and you get told "Can't put away the disk 'xxx' because it contains items which are in use". Then you have to go through all your apps finding out which are the offending docs or apps and quitting them. Why couldn't there be another button in that dialogue to automatically close all open items and remove the disk in one go? Even just a button to show the open items would be nice.

The other feature I'd really appreciate would be an addition to the standard System "TextEdit" routine to enable any text displayed this way to be spoken (using PlainTalk) – perhaps using a control strip module. This way programs could very easily speak text without having to specifically add this feature.
David Rowbory
Glasgow, via FutureNet

*The thing I'd like to see changed about the "Can't put away disk" – or, more often, "Can't delete folder" – alert is that it can be wrong and there aren't **really** any items in use in the folder you're trying to delete (you've closed the file in that folder, though perhaps not quit the program you opened it with). As for the speech idea, surely it can't be any harder for applications to make a call to the Text-to-Speech routine than to TextEdit – **SimpleText** can do it. Any more suggestions? Send them to "System 8 Wish List" at the usual address.*

It's just not cricket...

I was pleased to read your enthusiastic review of *Actua Soccer* in MACFORMAT 46. I noticed particularly the sentence "after a very long wait, a footy game has finally made it to the Macintosh." This struck a resounding chord with me, as I wait and wait for a cricket game to appear for the Mac.

I urgently need some way of seeing New Zealand win a cricket match, and it seems my only chance is to orchestrate the event on my computer. But I have no way of so doing. There are stacks of good cricket games for other machines, why not the Mac? Is there anything out there? Commercial, shareware, beta, anything...?
John Cross
Dunedin, New Zealand
via FutureNet

All we know of is a cricket multimedia title, reviewed on page 104 this very issue. Anyone know of any games? And if not, why not?

And not football either

Talking about the *Actua Soccer* demo in MACFORMAT 46, you said to "try to forget that the maker has called the game 'soccer' and not 'football'". Here in Australia, when we talk about *football*, we are talking about rugby league. If it were called *Actua Football*, Australians would assume they were buying something completely different. I'm not sure if it's the same anywhere else in the world, but I think that's why *Actua Soccer* was named that way.
Bruce Rayne
Sydney, Australia, via FutureNet

It's actually not even the same south of the border in Victoria, where "football" means Australian Rules. Or in the US, where it means the game we apparently shouldn't call "gridiron". At least the term "soccer" is unambiguous. But what on earth is an "Actua"? **MF**

Cruising the Keys

■ QuickTime Easter egg If you have QuickTime version 2.0 and above, try holding down **[command] [option] Q T** all together when your Mac starts up. When the QuickTime Extension loads, you should get a cool wee movie of all the members of the QuickTime team plus some suspicious music... (If you have versions 1.0 to 1.6.2, you'll get a picture of the whole team.)

■ Stickies Easter egg Create a new Stickies note and type "Antler!", then press **[return]**. You should see a moose head on the note.

■ Sound Easter egg In the **Sound** Control Panel, while holding down **[option]**, open the pop-up menu and select something else. You should hear a weird sound and then a box with credits pops up.

Oh yes, you mentioned the picture of the Apple HQ and the flag with the iguana on it last issue. Try pressing the keys **P, W,** or **T** (or you can use combinations of the three letters) and you should find some interesting results. *And* if you jerk the mouse hard enough and in the right way, the flag can in fact break off! Then you can use the mouse to control the direction in which it drifts! Neat!
Alvin Ho
via FutureNet

Speaking of hidden surprises: this striking "Electric Cat" features in a screen with some credits that you can find by clicking in the top part of the *Photoshop* toolbox with the **[command]** key held down. "Any ideas why it's there or what it represents?" asks Kevin Thorne.

Anyone else found any Easter eggs, hidden messages or keystroke shortcuts? Write to "Cruising the Keys" at the address opposite!

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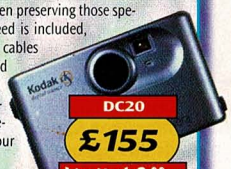
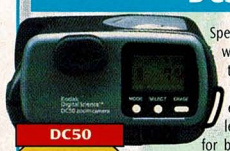


DC20 £155 Limited Offer

DC50



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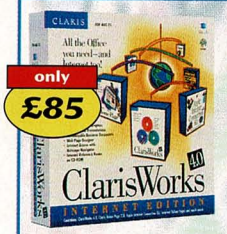

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INTERNET

4DFI	**4D First Internet Server** (fast, relational server)	£109.00
AINK	**Apple Internet Connection Kit** (available on CD ROM only)	£49.00
HMPG	**Claris Home Page v2.0 NEW VERSION!!!!!**	£79.00
BK5010	**Internet Starter Kit** (the best book)	£36.86
CLEM	**Emailer** (great mail program, supports many services)	£45.00
EDRAA	**Eudora v2.1** (most popular mail package)	£59.00
INET	**Internet Access Kit** (Internet dial up, email, Web, FTP)	£25.00
NTSCB	**NetScape Navigator** (best browser, includes manuals)	£59.00
NUTW	**Now Web Publisher** (put diary/schedules on the net)	£95.00
PGML	**PageMill v2** (the WYSIWYG way to create web pages)	£65.00
STML	**SiteMill v1** (eases maintenance of Web Sites)	£139.00
WBBY	**Web Buddy** (makes your surfing easier)	£39.00

POWERBOOK

CCPx	**Carry Case** (Apple or third party)	from £19.00
PCNA	**Ethernet Card** (Farallon 10BaseT PCMCIA card)	£175.00
FEVC	**MV16** (16 bit colour/10BaseT Ethernet for 5300/190s)	£159.00
TPCM	**TDK Modem** (PCMCIA 28.8 fax modem)	£189.00

ACCESSORIES

	Cables, Toners and Ink Cartridges (for laser & inkjet printers)	call
KBCF	**Extended Keyboard** (15 function keys, numeric pad)	£35.00
QCKM	**QuickCam** (mono video camera for QuickTime)	£79.00
QCKL	**Colour QuickCam** (colour video camera for QuickTime)	£159.00
AGMJ	**JetStick** (joystick for the control you've always wanted)	£39.00

SESY	**Security Systems** (is your Mac vulnerable to theft?)	from £29.00
TMADD	**Thinking Mouse** (4 button with software)	£59.00
TMADC	**Turbo Mouse** (top selling trackball)	£75.00
WCU6D	**Wacom ArtPad II A6** (handy stylus and tablet, inc Dabbler)	£120.00
WCU5	**Wacom UltraPad A5** (stylus and tablet)	£249.00
WCU4	**Wacom UltraPad A4** (professional stylus and tablet)	£359.00
VR256	**256K VRAM Chips** (adds more colours)	£19.00
VR512	**512K VRAM Chips** (adds more colours)	£25.00
VR9A	**1Mb VRAM DIMM** (for 7200, 7500, 8500)	£35.00

PROGRAMMING

HYPC	**HyperCard v2.3.5** (new version, more power)	£89.00
CDWG	**Metrowerks Code Warrior Gold v11** (PowerMac compiler)	£290.00
CDWJ	**Discover Programming with JAVA**	£65.00
FTBS	**FutureBasic II** (the best Basic for Mac, inc. PG Pro)	£179.00

UTILITIES

ATMC	**ATM Deluxe v4.0** (manages and anti aliases fonts)	£49.00
CPTV	**Captivate** (professional screen capture utility)	£52.00
INVU	**Conflict Catcher v3.0** (INIT manager and more)	£55.00
NDBP	**DiskDoubler Pro** (Disk,Auto and Copy Doubler)	£59.00
HDTK	**Hard Disk Toolkit** (the best formatter and checker)	£109.00
NUME	**Norton Utilities v3.2** (best selling utilities package)	£69.00
NOWU	**Now Utilities v6.5** (suite of essential utilities)	£59.00
POPF	**PopUpFolder** (view folder contents with submenus)	£29.00
QCKY	**QuicKeys v3.5** (macro maker, time saver utility)	£59.00
RAMD	**RamDoubler** v2 (actually doubles your available RAM!)	£45.00
SPED	**SpeedDoubler** v2 (greatly improves performance)	£45.00
THDR	**SpellCatcher** (spellchecker, works in all applications)	£45.00
SFDL	**Stuffit DeLuxe** (famous file compression program)	£65.00
SUIT	**Suitcase v3.0** (manage your font menus)	£55.00
HDTT	**Turbo Toolkit** (speeds up startup and Finder)	£45.00
OPDT	**DeskTape Pro** (treats DAT as if it were a 2Gb drive)	£199.00
PRSB	**Personal Backup** (best value backup on the market)	£29.00
RTSP	**Retrospect v3.0** (powerful archival backup)	from £119.00
SAM	**SAM v4.5** (Symantec's anti virus utility) special offer	£49.00

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Saturday 10am to 4pm.

pace

MICROLIN 33.6 for Mac

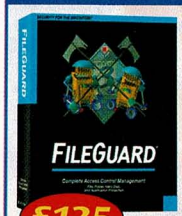
The new MICROLIN 33.6 for Mac is the ideal modem solution for anyone who wants to get their Mac connected to the world at the highest possible speed. The MICROLIN 33.6 for Mac is ideal for high speed Internet access, e-mailing friends and colleagues and sending and receiving faxes directly from and to your Mac.

- 33.6Kbps desktop modem
- High speed send and receive fax
- Error correction and data compression
- Extension socket for parallel telephone connection
- Supplied complete with cables
- Fax and data communications software
- Free Internet trial software

ONLY **£115**

FileGuard

HIGHWARE



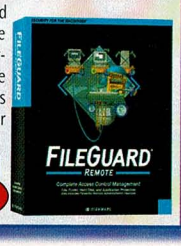
FileGuard 3.0.3

Fileguard is the premier security solution for any shared Mac. Using four different methods of encryption to control access to any file, folder, floppy disk, hard or removable drive, it offers the most powerful and flexible protection around. Set up any amount of users, each with their own unique privileges. Version 3.0 offers a simplified interface, time limited access, the option to restrict guessable passwords, a file shredder, an enhanced user log, a screen saver which can integrate with After Dark™, and more.

£125

FileGuard Remote 3.0.3

Fileguard Remote offers all the features of Fileguard with the added benefit of allowing an administrator to install, configure and protect all Macintosh computers locally or across a network from a single workstation. It also allows the user log of any networked Mac in real time. Popular in the educational and corporate markets, Remote is available as a site license as well as the office packs listed below ... call us now for pricing!



5 pack **£395** 10 pack **£675**

VIRX	**Virex v5.7** (best virus tracer & eradicator of all)	£59.00
LTSS	**Looney Tunes** (famous cartoon screensaver)	£17.00

EDUCATION

FROM 3 YEARS UPWARDS (inc VAT (exVAT))

KDMH	**KidsMath** (takes kids from counting to arithmetic)	£34.08 (£29)
KDPX	**KidPix II** (wonderful paint program with sound effects)	£28.20 (£24)
NMBM	**NumberMaze** (award winning arithmetic tutor)	£41.03 (£35)
RDMZ	**ReadingMaze** (letter recognition to sentences)	£41.03 (£35)

CD ROM

EDUCATION (inc VAT (exVAT))

ARTT	**Arthur's Teacher Trouble** (interactive story book)	£28.20 (£24)
ARTB	**Arthur's Birthday** (more Arthur)	£28.20 (£24)
FNWRD	**Creative Writer & Fine Artist on CD ROM**	£41.12 (£35)
LJZCD	**Logical Journey of the Zoombinis** (rave reviewed)	£28.20 (£24)
HHHS	**Harry and the Haunted House** (the new best seller)	£28.20 (£24)
KDPCD	**KidPix Studio** (KidPix plus animation)	£28.20 (£24)
RUFF	**Ruff's Bone** (adventures with Ruff the dog)	£28.20 (£24)
HARECD	**Tortoise and the Hare** (the epic race)	£28.20 (£24)

REFERENCE (inc VAT (exVAT))

3DAT	**3D Atlas** (simply wonderful)	£45.83 (£39)
MAGCD	**Art Gallery** (Microsoft's tour of the National)	£34.08 (£29)
CINI	**Cinemania '97** (19000 movie reviews and more)	£28.20 (£24)
GRLCD	**Groliers Encylopaedia 97** (21 vols, 9 million words!)	£41.12 (£35)
OEDCD	**Oxford English Dictionary** (the whole thing)	£264.38 (£225)
REDCD	**Red Shift** (superb astronomy program)	£41.13 (£35)
UHBCD	**Ultimate Human Body** (Dorling Kindersly's one)	£29.38 (£25)

ENTERTAINMENT

BEST SELLING GAMES ON CD (inc VAT (exVAT))

MRTHCD	**Marathon 1 and 2 Bundle** (can you resist?)	£22.32 (£19)
WRGCD	**Warcraft II** (detailed graphics, haunting sound)	£37.61 (£32)
ACSOC	**Actua Soccer** (set to be number one for sure)	£31.72 (£27)
MJPCD	**Mah Jong Parlour** (classic oriental game)	£41.13 (£35)
ELACE	**Electronic Arts Top 10 pack I**	£34.07 (£29)
MYST	**MYST** (magical mystery adventure)	£37.61 (£32)
SIMCC	**Sim City 2000 Collection** (with extra goodies)	£41.13 (£35)
PRPCD	**Prince of Persia I & II** (two of the best ever)	£11.75 (£10)

BEST SELLING GAMES ON FLOPPY DISK (inc VAT (exVAT))

ERIC	**Eric's Ultimate Solitaire** (a dozen patience games)	£41.13 (£35)
A10A	**A10 Attack** (the best flight sim around)	£45.83 (£39)
F18H	**F/A18 Hornet** (from the creators of Hellcats)	£57.58 (£49)
BRDG	**Bridge** (not the Golden Gate but the card game)	£29.38 (£25)
FLSM	**Microsoft Flight Simulator** (realistic, accurate)	£41.13 (£35)

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*Same day delivery in London area is available.
*Defective goods are replaced immediately, subject to availability.
*Prices are correct at the time of going to press. E&OE. We cannot guarantee the prices printed here as they are out of our control and will occasionally be higher or lower. Please check prices with us before placing an order.
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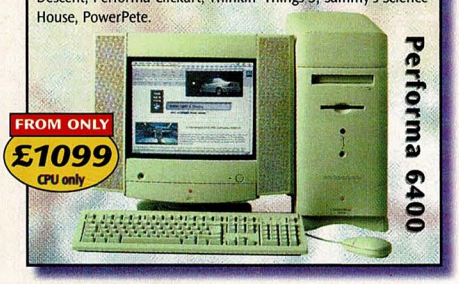
THE APPLE HOME OFFICE

HARDWARE - PowerPC 603e running at 180 or 200MHz, 32k internal cache, integrated FPU, 64-bit memory bus, optional 256K level 2 cache, 16Mb RAM expandable to 136Mb, Internal 1.6 or 2.4Gb IDE Drive, 1.4Mb, 8x CD ROM, resolution up to 1024 by 768, 16 bit colour up to 800 by 600, optional 28.8Kbps built in modem software included, 16 bit sound, stereo speakers, microphone,, 2 x 7inch PCI slot, SCSI, 5.25 inch internal SCSI expansion bay.

SOFTWARE - Mac OS 7.5.3, Best of European Soccer, Apple Telecom 3.0, Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Claris Impact, Claris Organiser, Internet Connection Kit, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa Clickart, Thinkin' Things 3, Sammy's Science House, PowerPete.

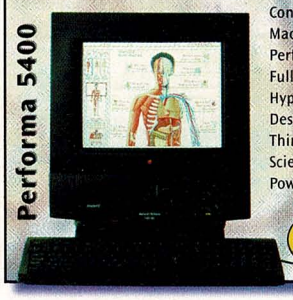


FROM ONLY **£1099** CPU only

THE FAMILY MACINTOSH

HARDWARE - PowerPC 603e running at 180, 32k internal cache, integrated FPU, 64-bit memory bus, optional 256K level 2 cache, 16Mb RAM expandable to 136Mb, Internal 1.6Gb IDE Drive, 8 speed CD ROM, 15" RGB monitor built in, resolution up to 1024 by 768, 16 bit colour up to 800 by 600, 28.8Kbps built-in modem with fax software included, 16 bit sound, stereo speakers, built-in microphone, Video in and TV tuner, 1x7inch PCI slot.

SOFTWARE - Mac OS 7.5.3, The Best of European Soccer, Apple Telecom 3.0, The Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, 120 Letters, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Internet Connection Kit, MacLink Plus, Performa Clickart, Full Throttle, HyperCard Player, Descent, Thinkin' Things 3, Sammy's Science House, PowerPete.

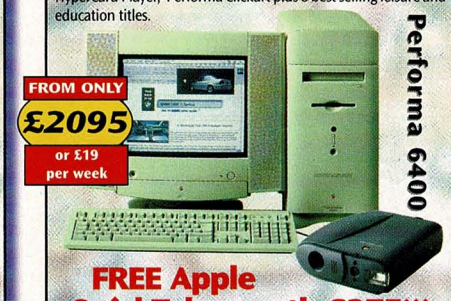


FROM ONLY **£1445**

THE APPLE CREATIVE STUDIO

HARDWARE - PowerPC 603e at 200MHz, 32k internal cache, FPU, 64-bit memory bus, 256K level 2 cache, 24Mb RAM up to 136Mb, Internal 2.4Gb IDE Drive, 1.4Mb, 8x CD ROM, resolution up to 1024 by 768, 16 bit colour up to 800 by 600, 28.8Kbps built in modem software included, 16 bit sound, stereo speakers, microphone, 2 x 7inch PCI slot, SCSI, 5.25 inch internal SCSI expansion bay.

SOFTWARE - Mac OS 7.5.3, Avid Cinema, Adobe Photodeluxe, PowerGoo, Cubasis AV, Adobe PageMill, Dabbler, Best of European Soccer, Apple Telecom 3.0, Apple Video Player, Acrobat Reader, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Claris Impact, Claris Organiser, Internet Connection Kit, MacLink Plus, HyperCard Player, Performa Clickart plus 8 best selling leisure and education titles.



FROM ONLY **£2095** or £19 per week

FREE Apple QuickTake worth £375!!!

4400/200 16/1.2Gb/CD

ONLY **£899** CPU only

ONLY **£1099** with 15" monitor

Now running at a Screaming 200MHz!!

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- Integrated FPU,
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- Available CPU only or with Apple 15" MultiScan

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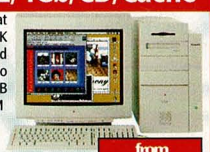
• Two PowerPC 604e processors at 200 MHz •Integrated FPU, 64K cache • Accelerated graphics card •32MB of RAM, expandable to 768MB •512K level 2 cache •4GB SCSI hard disk •12-speed CD-ROM •Six PCI expansion slots •Ethernet •Composite and S-video video input and output •Support for Speech Recognition and text-to-speech capabilities•2MB of VRAM, expandable to 4MB •Support for display resolutions of up to 1,280 by 1,024 pixels •24-bit color up to 1,152- by 870-pixel resolution •Refresh rate of up to 75 Hz



from **£3299** CPU only or £30 per week

POWERBOOK 1400cs

• PowerPC 603e 117MHz processor • 12Mb RAM expandable to 64Mb • 750Mb Internal drive • 11.3" dual scan colour screen • 800 x 600 SVGA, 1Mb VRAM • Will accept third party Level 2 cache • Batteries: Nimh with support for Lithium Ion, 3-5 hours average life • Expansion bay accepts CD ROM, Magneto Optical or Hard Drives • Expansion slot accepts PC Cards for Ethernet and/or Modem as well as Video. Supports two type II or one type III card • Ports: Serial, SCSI, ADB, audio • Built-in LocalTalk port • Two stereo speakers • Higher performance trackpad • Removable top cover allowing the addition of different covers or even a solar power panel • Dimensions: 11" x 9" x 2"

• Weight: 6.5 pounds with floppy and battery, 6.7 pounds with CD and battery

OR as above with 6 x CD ROM drive and 16Mb RAM and StyleWriter 2200

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APPLE MONITORS

20" Multiscan **£1195**

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AV 1710 **£595**

5260 12/800/CD

Based around a Power PC 603e chip running at 100MHz, the 5260 combines the CPU and a 15" multiscan monitor supporting 32,000 colours. It has a built-in quad speed CD ROM drive, 12Mb of RAM as standard, and includes free ClarisWorks version 3.0.

ONLY **£799**

COLOUR STYLEWRITER 2500

This top selling StyleWriter offers 720- by 360-dpi resolution for both color and black and easily prints high-quality text and images at 5 pages per minute for black and white and up to 0.66 page per minute for color.

ONLY **£235**

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The Apple PowerBook 3400 series takes Apple's most acclaimed feature-ease of use - and combines it with desktop-level performance, state of the art multimedia, and quick and easy communications capabilities. These systems are the optimal choice for mobile professionals who want access to top of the line notebook computer technology

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Includes free Now Utilities

- 12.1" active matrix SVGA display supporting thousands of colours
- Provides built-in Ethernet and modem (most configurations)
- Batteries: lithium ion
- Internal CD ROM Drive (12 speed in the 240MHz model)
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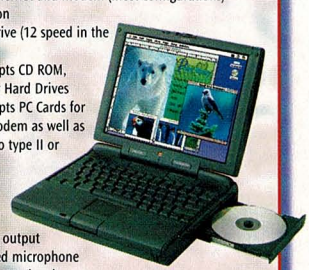
- Expansion slot accepts PC Cards for Ethernet and/or Modem as well as Video. Supports two type II or one type III card
- Ports: Serial, SCSI, ADB, audio
- Features 16 bit stereo sound input output ports and integrated microphone
- Higher performance trackpad



6320 12/1.2Gb/CD

Based around a Power PC 603e chip running at 120MHz, the 6320 supports a 14" or 15" multiscan monitor and has a built-in quad speed CD ROM drive. It has 12Mb of RAM as standard, 256k Cache, and includes completely free ClarisWorks version 3.0 and massive software bundle.

ONLY **£725** CPU only or £7 per week

LASERWRITER 4/600

The Apple LaserWriter 4/600PS is ideal for the individual home, education and small business users, and it's capable of integrating into offices that have Ethernet. Being Energy Star compliant, the printer works without an on/off switch and instead 'wakes up' when required, consuming less than 10 watts of power when asleep.

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7300 16/1.2Gb/CD/Cache

The new Apple Macintosh 7300 series combines affordability, high performance and upgradeability to provide an ideal system for small and medium sized businesses, for home offices and for running productivity or multimedia applications in organisations of any size.

- PowerPC 604e at 180 or 200 MHz
- Integrated FPU and 64K cache
- 16MB RAM, expandable to 512MB
- 256K level 2 cache
- 1.2GB SCSI hard disk
- 12 speed CD-ROM
- Three PCI expansion slots
- Internal 3.5-inch internal expansion bay
- S-video input connector
- Real-time video playthrough of up to 768 by 576 pixels
- 2MB of VRAM, expandable to 4MB
- Fast 64-bit data path to VRAM
- Support for display resolutions of up to 1,280 by 1,024 pixels
- 24-bit color up to 1,152- by 870-pixel
- Refresh rate of up to 75 Hz
- 16bit stereo audio input and output
- 64bit VRAM subsystem
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Includes free Now Utilities

INCLUDES FREE MICROSOFT OFFICE

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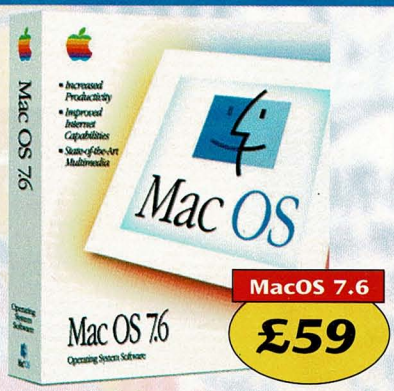
UPGRADE NOW! Mac OS 7.6



MacOS 7.6 **£59**

Mac OS 7.6 is the first release in Apple's new strategy of delivering state-of-the-art operating system functionality on a regular basis. This release unites many new Apple technologies with additional features and functionality, to offer pervasive Internet access, improved productivity, state-of-the-art multimedia and enhanced PC compatibility. Specifically, Mac OS 7.6 integrates the Internet more fully into your desktop and documents, provides new ways to work better and faster, enables the creation of more compelling multimedia documents and improves performance and ease of use in key areas such as installation, printing, networking and extensions management. Best of all, Mac OS 7.6 is designed to install easily and works with all System 7 based applications and files. It incorporates new features designed to improve the way you work including : Live Objects component software; enhanced support for PC files and media (including Windows 95); and advanced networking and printing functionality.

KEY BENEFITS:

INTEGRATED INTERNET
Latest versions of OpenDoc, Cyberdog, and Open Transport software including the Apple Internet Connection Kit.

IMPROVED PC COMPATIBILITY
Includes PC Exchange, Mac OS Easy Open, and DataViz MacLinkPlus translators.

FASTER, SIMPLER NETWORKING
Open Transport (OT) speeds and simplifies networking.

STATE-OF-THE-ART MULTIMEDIA
QuickTime Media Layer (QTML) makes it easier than ever to produce and play back high-impact multimedia such as video, sound, and 3D graphics.

SPEEDIER PRINTING
Speeds printing as much as 35%, simplifies setup, and lets you switch printers quickly.

NEW EXTENSIONS MANAGER
Simplifies configuration and troubleshooting.

9600/200 32/4Gb/CD/Cache

The Power Mac 9600/233 is top of the line in speed, performance, expandability and upgradeability, which is tremendous news for publishers - particularly those working with advanced colour - as well as multimedia professionals and engineers.

- Power PC 604e at 200 or 233 MHZ
- Integrated FPU, 64K cache
- 4MB IMS accelerated Video Card
- 32MB of RAM, expandable to 768MB
- 512K level 2 cache
- 4GB SCSI hard disk
- 12-speed CD-ROM
- Ethernet
- Six PCI expansion slots
- Composite and S-video video input and output
- Support for Speech Recognition and text-to-speech capabilities
- Support for displray resolutions of up to 1600 by 1200 pixels
- 24 bit colour up to 1152 by 870 pixel reolution
- Refresh rate of up to 75Hz

200Mhz **£2599** or £24 per week

Includes free Now Utilities

With 21" Mitsubishi monitor add ONLY £995

8600/200 32/2Gb/CD/Zip

If your profession demands a high-performance, expandable computer that's optimised to make work easy, choose the Power Macintosh 8600/200 system. This high-performance computerincludes built-in video-in and video-out capabilities in an innovative new design. It includes features that make it an ideal choice for in-house publishing, media authoring, and technical applications

- PowerPC 604e at 200MHz
- 256K cache
- Integrated FPU and 64K cache
- 32MB of RAM, expandable to 512MB via 4 DIMM sockets
- 2GB SCSI hard disk
- 12-speed CD-ROM
- Internal Zip drive
- Three PCI expansion slots
- Ethernet
- Stereo audio input and output support 16-bit audio and up to 44.1-kHz sampling rate
- 1MB of VRAM, expandable to 4MB
- Support for display resolutions of up to 1,280 by 1,024 pixels
- 24-bit color up to 1024x768 resolution

Includes free Now Utilities

ONLY **£2249** or £21 per week

With 21" Mitsubishi monitor ONLY **£3245** or £30 per week

UMAX

All prices exclude the monitor

ONLY **£1095** free software

Apus 3000/200

- Power PC 603e at 200Mhz
- 16Mb expandable to 144Mb
- 1Mb VRAM-on 3D video card
- 256K Level 2 cache,
- No on-board ethernet
- 1.2Gb IDE Drive
- 8 * CD ROM drive
- Keyboard & mouse
- 3 PCI slots
- Upgradable CPU socket

Apus 2000/160

- Power PC 603e at 160 MHz
- 16Mb RAM up to 144Mb
- 1Mb VRAM-built in video
- 256K Level 2 cache,
- No on-board ethernet
- 1.2Gb IDE Drive
- 8 x CD ROM drive
- Keyboard & mouse
- 2 PCI slots
- Upgradable CPU socket

ONLY **£775** free software

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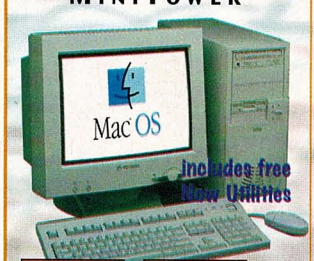

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Pa

rty on!

As Apple celebrates its 21st birthday, MACFORMAT looks at the company's past, present and future. In a world with hundreds of kinds of computer, what is it that makes Apple and the Macintosh so distinctive?

In a recent television interview, Microsoft's Bill Gates boasted that his company had been responsible for the direction of personal computing in the last decade or more. The truth, as any Macintosh user knows, is rather different. It was Apple that defined the computer as we think of it today. It created the first genuine mass-appeal machine in its Apple II, once the world's best-selling computer. Through that machine, the program *VisiCalc* pioneered the concept of ready-to-buy computer programs. The Macintosh, when it appeared with a flourish at the start of 1984, brought the world the graphical user interface, the mouse, icons, menus and windows – Microsoft not only copied the concept but in typical fashion even attempted to lay claim to the very term itself.

And the Mac has brought us so much more than even its revolutionary graphic interface – it introduced simple networking, multimedia, the 3.5-inch disk drive, and much, *much* more. It is hardly an exaggeration to say that the list of Apple's milestones reads like a history of the innovations in personal computing over the last 20 years. More than that: Apple has transformed what people do with computers as well as how they do it – it was the Mac's graphical display of text, which meant you could resize or restyle it and see what you were getting, that made DTP possible. Apple brought out the first personal laser printer, the first colour screen display system, the first standardised on-screen video display system, the first RISC-chip-based personal computer. Other firms have merely gasped in admiration and imitated, for none could match the force of Apple's creativity at its height.

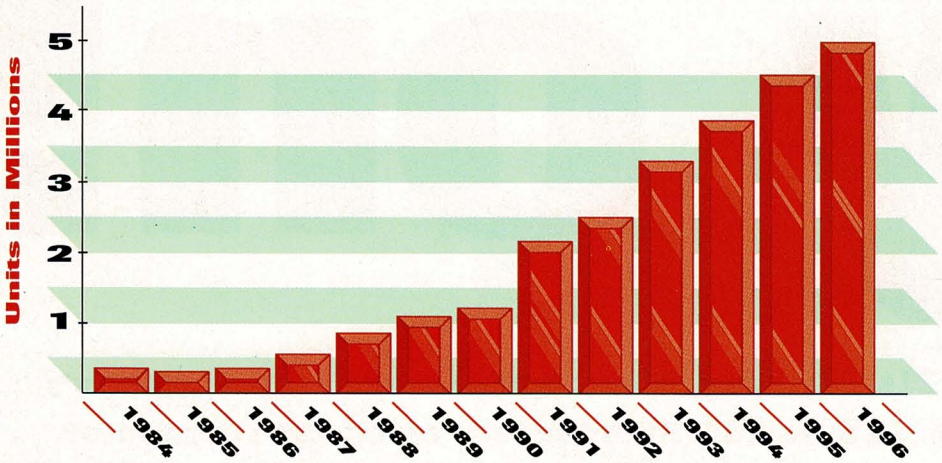
Apple reborn

Apple achieved all of this in the late '70s and early '80s with a sprawling, unruly culture. Renegade engineers ➤

In the next 21 pages...

Apple timeline p.**38**
Future Macs p.**39**
Apple UK's boss on the new Apple p.**40**
50 Mac facts p.**42**
Mac OS 7.6 reviewed p.**44**
Rhapsody – the *next* Mac OS p.**47**
Buyer's guide – 50 Macs and clones reviewed p.**50**

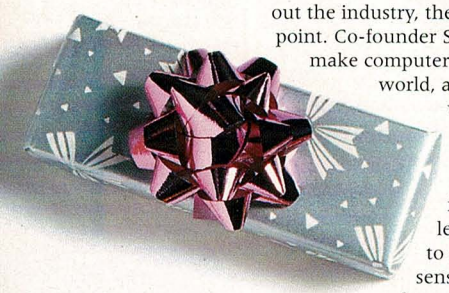
Onwards and upwards



More Macs have been sold in each successive year since 1985, as our figures from Apple and CII show. The healthy leaps in '95 and '96 show that while Apple may be facing a tough time, the Mac itself is thriving.

would work all hours of the day and night on pet projects, just to see what came out of them. The archetypal geeks, Apple engineers were Peter Pan figures – no kids, no ties, no respect for authority or "the done thing". It's the one distinctive feature of the company that other firms have elected not to imitate, and it's the feature that has hurt Apple as much as it has benefited it.

As the Apple II topped the sales charts and the Mac sent shock waves throughout the industry, the firm faced a turning point. Co-founder Steve Jobs wanted to make computers that changed the world, and Apple's success was placing that dream in clear sight. Every small, creative company faces the same problem as it grows: how to introduce corporate sensibilities to help it plan and manage its resources, bringing its ideas to a wider audience, without losing the spark that enabled the growth to begin in the first pace. Many parts of Apple have made this changeover successfully: the firm's European and UK arms are tightly-run profit-makers, yet still offer the imagination we've seen in recent developments like Apple's Creative Studio. Apple's heart, though, lies in its campus in California, and the past decade has seen successive attempts to rein in the creative spirits there.



Apple reborn

In the past few years, Apple has taken a financial battering as it failed to predict how many of each type of Mac it would sell, or enable different divisions to work together to share resources and save money, or ensure that technology was sufficiently proven before releasing it.

Apple was written off by some business observers in 1996, and may have been closer to the abyss than any of us realised at the time. Speaking at a recent shareholder meeting, Apple's Chief Executive Officer Gil Amelio revealed: "When I arrived, we were broke. We had barely enough cash to conduct day-to-day business."

Amelio ensured Apple's survival within a year of his arrival. He's given the firm a solid foundation of cash reserves, without which it would never have been able to buy NeXT Software and use NeXT's technologies to improve and develop the Mac.

Even Amelio, though, has been taken aback by Apple's apparent refusal to knuckle down and focus on the basics, as he revealed recently to the magazine *Business Week*. After a year at Apple's helm, he has already instituted pragmatic procedures to get Apple working properly, yet still seen the firm lose $120 million dollars over Christmas as it miscalculated the demand for different types of Mac: "I didn't realise it, but people would listen to me, say 'Gee, that was a nice speech', and go do what they wanted. This time, I'm going to use the two-by-four approach. I'm going to put this place through the most gut-wrenching change it's ever had."

Amelio is bringing in a tough series of changes, dropping projects and cutting employees as he gets Apple focused on specific aims (see News, page 22, for the latest developments). Ironically, Apple's purchase of NeXT has brought back a more sober Steve Jobs, one of the parents of Apple's wild nature, to advise on the firm's rebirth.

The Mac is dead

If Apple is going to become a more conservative company – as it must – what does that mean for the future of the Mac? The computer that millions use every day is the firm's biggest achievement, but one that might not have been possible without the traditional freewheeling Apple culture. As Apple gets bigger, can it remain relevant in the same way it has for the past 21 years?

The Mac has already undergone two significant transformations this decade. The move from Macintosh to Power Macintosh effectively introduced a brand-new computer platform. Some people saw the PowerMac merely as a faster Mac, but the Mac OS has had to be completely rewritten over a period of

21 years of Apple

It started in a garage – and who knows? Maybe it'll end up in a garage. Now, though, Apple is 21: it's made mistakes for all to see, but remains a truly innovative organisation. Here are the highlights of Apple's turbulent passage into a mature global firm.

1976

March Steve Wozniak and Steve Jobs design their first computer together – the Apple I.

April The duo starts Apple Computer on 1 April.

July The Apple I goes on sale for $666 (around £410).

1977

January Apple Computer is officially incorporated, enabling it to draw in extra finance. AC "Mike" Markula joins as chairman.

January Apple moves out of its first HQ, a garage owned by Jobs's parents, to a building in Cupertino, California.

April Rob Janoff of Regis McKenna Advertising designs the enduring Apple logo.

June The Apple II goes on sale. Apple's first ready-made computer, it offers 4K of RAM, demo software on cassette and plugs into a TV. Price: $1,298 (£800).

1978

December Apple enjoys sales for the year of $10 million (£6.2 million), ten times the amount of the previous year.

1979

June Apple Education Foundation aims to establish links with schools and increase use of computers in education. It marks the beginning of Apple's long-standing association with learning.

October Personal Software launches *VisiCalc* for the Apple II. It's the first prominent example of a commercial software program as we know it today – a tool for anyone who can't write their own software.

1980

September The Apple III goes on sale. Despite its new operating system, it won't prove as enduring as the Apple II. Price: $3,495 (£2,150).

December Apple offers shares to become a public company.

1981

February Apple's first UK office opens in Slough.

August IBM launches the IBM PC with Microsoft's Disk Operating System (MS-DOS). The PC and Apple's own machines will go on to dominate the personal computer industry.

1982

December The Apple II is the world's best-selling personal computer and Apple's annual sales top $1,000 million for the first time.

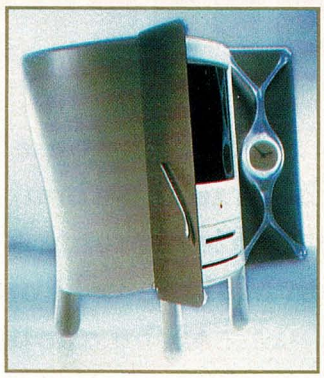
1983

January Apple's Lisa is the first mass personal computer to offer a graphical interface. Price:

Designs for life

Apple is renowned for its high design standards, never failing to offer an attractive-looking machine. Now the firm is looking to emphasise the cutting-edge feel of its most ambitious projects, using new materials and ideas to create thoroughly modern Macs.

The 20th Anniversary Mac (far right) sums up everything we recognise as quintessential Apple – it looks great, it's powerful and it's late. Apple now says that its 20th Anniversary Mac is being released to mark the date of the firm's incorporation (see our timeline, starting below) – but naaah, it's late. The 20A is an attempt to do for computers what Bang and Olufsen, most famously, has done for hi-fi: transform a functional device into a feast for the eyes and ears. Expect this Mac to cost around £5,750 when it's released in strictly limited numbers late this year (no more than 12,000 units worldwide, according to latest reports – see News, page 22). Inside you'll find a 250MHz PowerPC 603e chip, slightly faster than the PowerBook 3400. You'll be able to buy one only through AppleCentres, which will be offering a "concierge service", according to Apple UK's General Manager Jon Molyneux. "We want them to be delivered and installed by men wearing white gloves," he says. (See the MACFORMAT interview, page 40.)



A prototype that may never be released, this Mac is an example of blending technology into the home.

Coming to the UK later this year, the eMate is a luminous example of Apple's revitalised design.

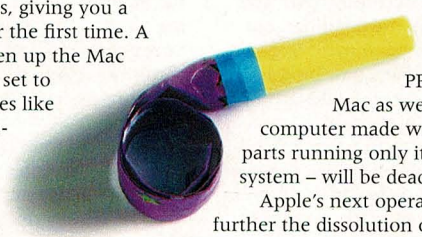
The eMate (bottom left) is an even more audacious project. Based on Apple's hand-held Newton devices, it combines colour and durability to make it the ideal computing device for kids. The idea is that children can use their eMate at home, then bring it into school and hook it up to the school's network for collaborative projects. Currently in trials at several schools, the eMate is due for release later in the year.

The frankly gorgeous 20th Anniversary Mac will appear later this year – form an orderly queue now.

This last prototype (above left) demonstrates some of the paths Apple is exploring in its quest to make computers more relevant to the way we live – although it has no plans to release this model at the moment. With its graceful lines and embedded clock face, it would fit into the most stately of homes. Yet it's utterly utilitarian as well, revealing a working Mac behind its door panels.

years to work on the new machine. (The fact that that transition was as smooth as it was is a tribute to the genius of Gary Davidian, the programmer who single-handedly wrote the software emulator that made it possible to run pre-PowerMac software on the new machines – and it's also an inspiring object lesson in how Apple can sometimes manage change brilliantly.)

Then came the second big transformation: Apple invited other companies to join it in making Macs, giving you a choice of suppliers for the first time. A dozen firms have taken up the Mac challenge, with more set to follow this year. Names like Umax, Power Computing, Motorola and DayStar have extended the range of the Mac, so that it can be both a £900 workhorse and a £9,000 graphics and multimedia powerhouse.



Now Apple is attempting to extend these changes, but with a few new twists that will challenge our notions of what the Mac actually is. The first PowerPC Platform computers will debut later this year, probably in the summer. These new computers will run the Mac OS and other operating systems like Windows NT, while computer manufacturers will be able to make PPCP machines with cheaper industry-standard parts. With PPCP's arrival, the Mac as we know it – a computer made with specialised parts running only its own operating system – will be dead.

Apple's next operating system will further the dissolution of the Macintosh concept as we have known it. Code-named Rhapsody, it will work not only on PowerPC Platform computers, but also on PC-compatibles using Intel processors. Because the Mac OS will be available separately, it's possible that Rhapsody's official name may not even use the term "Mac" – although it's far too soon for Apple to have to weigh up these issues and make an announcement. In a matter of years, the Mac will have moved from an Apple computer running only an Apple OS to an intangible ideal, a set of ideas you can practise on practically any computer you like.

Far from meaning the end of the Mac, though, these moves instigate a new beginning. The Mac's elegance, ease-of-use and sense of creative empowerment, the principles that truly define the Mac, will spread wider than ever.

1984

April John Sculley leaves Pepsi Cola to become Apple's Chief Executive Officer.

May Apple enters the Fortune 500, the acknowledged scale of the world's biggest firms.

June Apple has sold one million Apple II's.

January Apple launches the Macintosh, with the famous "1984" advert shown during the Super-Bowl broadcast. The first Mac has 128K of RAM, a built-in monochrome screen and uses 3.5-inch floppy disks. Price: $2,495 (£1,540).

May Macs with operating systems in German, Italian and UK English go on sale.

September The Mac 512K goes on sale. Price: $3,195 (£1,975).

1985

January Apple launches the LaserWriter, a printer able to reproduce graphics and typefaces accurately enough for professional use. Along with Adobe's *PageMaker* DTP program and the Mac itself, the device will revolutionise the publishing industry, establishing an association between designers and the Mac which still continues.

February Wozniak resigns to start up a video hardware firm.

June As Apple miscalculates sales, Sculley is forced to sack 20% of Apple employees and restructure the firm along more efficient lines. Apple makes its first-ever three-month loss. Profitability and jobs will return over the next 18 months.

September Jobs resigns after boardroom battles with Sculley. He soon starts a new firm called NeXT, building on Apple's design innovations.

1986

January The Mac Plus goes on sale. Price: $2,599 (£1,600).

March AppleCentre dealers open in the UK.

1987

March The Mac SE and the Mac II go on sale. The top-of-the-range Mac II features 1Mb of RAM, a 40Mb hard drive and one 3.5-inch disk drive. Price: $5,498 (£3,395).

April Apple launches Claris, an independent firm for producing Mac software.

August Apple's *HyperCard* enables you to organise information in graphical form – the first primitive example of multimedia.

1988

March The AppleCD SC is the Mac's first-ever CD-ROM drive. Price: $1,199 (£740).

September The Mac IIx introduces Apple's high-density disk format, able to read 1.4Mb disks, not just the traditional 800K. Price: $7,769 (£4,795).

October Apple hits $4,000 million in yearly sales.

1989

April Apple's new QuickDraw system enables the Mac to display photo-realistic colour images.

September The predecessor for the PowerBook, the Macintosh Portable is another first for Apple.

October Apple tops $5,200 million in sales for 1989.

Continued overleaf

Core values

In the reports of Apple's problems, you don't hear much about the company's recent achievements – or much about the UK. Jon Molyneux, Apple's UK boss, tells Alex Summersby another side of the story.

Apple has made "tremendous progress" over the past year in putting right its corporate problems, and the UK and Europe were in fact "very healthy, very vibrant" and profitable even when the company globally was in the doldrums. That's the message from Jon Molyneux, Apple's Managing Director for the UK and Ireland, speaking in an exclusive interview with MACFORMAT. What's more, the UK has shown the way for the whole company with initiatives like its "solutions" marketing strategy, and will continue to be at the forefront of Apple's fightback.

"A year ago," he admits frankly, "we were in serious trouble." Apple globally was building up an inventory of unsold stock and "running out of cash"; it had "a huge quality crisis in some products, particularly PowerBooks; we had an operating system crisis because the OS was 20 years old and starting to show its age; and more than that, when Gil Amelio took over the reins he described us as a tribe of different cultures, all doing very creative things but unfortunately all in different directions, and it needed some strong management to come in and pull it all together.

"Any one of those would have been difficult," Molyneux concludes, "but all five together were pretty tough." All these problems are actively being tackled. Apple now has US$1.4 billion in the bank (even after the acquisition of NeXT), a firm direction and a revitalised, hugely experienced management team.

Building in quality

As for the quality issue, Molyneux says "the proof will be in the pudding," but there's a renewed commitment to quality and reliability in Apple's new products, from "the ruggedness of the design" to "the thoroughness of the testing", and Molyneux is positive. "The PowerBook 1400 is a great product, and we're getting 90% less warranty claims on the PowerBook 5300 – that's still 10% more than we want, but it's a hell of a lot different." (In fact, Molyneux uses a 5300 himself, and he says it's been "good as gold.")

"The people who are now running this business globally are not fresh-faced MBAs out of college. They're a world class act."

Can Apple ensure quality, though, with continuing pressure to keep cutting prices? The key, Molyneux explains, is containing costs by rationalising the product range, focusing on fewer models and fewer different motherboard designs. "The Performa range is basically three models now – it used to be 27. Look at the PowerBooks: only two models really, two or three flavours of each, but again there used to be something like 15."

The quality of the operating system too is "fundamental to Apple's continuing success. Our DSUV [Distinctively Superior User Value, the new Apple yardstick] is very heavily reliant on the operating system. We've got to have something that's better than the competition. And frankly, after 20 years, the basic Mac OS – after being copied, many times, but never surpassed – was starting to show some wrinkles. It didn't have

21 years of Apple continued

1990

January Previously at Apple Europe, Michael Spindler becomes Chief Operating Officer. He cuts Mac prices to compete with the rising tide of PC-compatible computers.

October The Mac Classic, the LC and the IIsi are new low-cost machines. Apple's sales are $5,500 million.

1991

May System 7 is Apple's most advanced operating system yet.

May QuickTime enables the Mac to play video clips.

May Apple announces 10% job cuts and other cost-cutting measures.

October Apple, IBM and Motorola announce their plans for a new computer design based on Power PC processors.

October Apple's biggest-ever launch introduces the Classic II, two Quadras and three PowerBooks.

1992

August Four million people are using System 7.

September Apple's Performas are its first Macs designed specifically for home users.

1993

February Apple has sold ten million Macs.

February Apple's biggest-ever launch welcomes the LCIII, the Centris 610 and 650, the Quadra 800 and the PowerBook 165c.

May Apple demonstrates System 7 running on a prototype PowerMac, using a PowerPC 601 processor running at 80MHz.

June Spindler becomes Chief Executive Officer, while John Sculley moves to become chairman.

July Spindler announces 2,500 redundancies and massive restructuring to make Apple more profitable.

August Apple's hand-held MessagePad is the first device to use the Newton OS.

September Sculley resigns.

November The Apple II ends its long career after five million sales in 17 years.

1994

March Apple launches the PowerMac, its PowerPC-based computer. The 6100/60, 7100/66 and 8100/80 are its first machines.

April Financial results show high demand for Macs, but Apple isn't making much money. The firm shows worrying signs of an inability to cope with fierce price-cutting elsewhere in the computer industry.

June System 7.5 adds new features to the Mac.

July The Performa 630 is the last Mac to use a Motorola 68000-family processor, but is set for a successful run. It will still be the UK's best-selling computer for Christmas 1995.

September Apple announces it will license Mac designs and the operating system to other

multi-tasking, memory protection, and so on.

"The acquisition of NeXT is a commitment to the OS of the future, which will be an NT-basher, frankly."

The bold decision to go with NeXT cut the Gordian knot that Copland, Apple's own OS 8 project, had become. But Molyneux emphasises that features developed for Copland will still find their way into the OS. Tempo (now officially named Mac OS 8, due this summer) "will incorporate many of Copland's Finder features, which are tremendous. And eventually when Rhapsody is released, many of Copland's features are in there, so it's the best of both worlds, it really is."

In every problem area, Molyneux sums up, "we're in far better shape now than we were a year ago."

British solutions

What's more, the UK and Europe actually exceeded revenue, sales and profit targets "in the quarter that everyone is talking about now" (October to December 1996). "Europe is very healthy, very vibrant, very positive," Molyneux says, "and the UK is particularly vibrant and particularly profitable. In December we shipped more units than the December a year ago, which was itself a record. I don't see that written in the press anywhere, and that really irks me.

"One more fact: if you add up all the Mac OS clones and add them to Apple's total, in that quarter we *grew* by 9% globally. I don't see that reported anywhere. They don't measure market share by platform, only by manufacturer. But in research done by Computer Intelligence in January, we actually did better than the Wintel crowd – we were 11% in the dealer channel and the Wintel share had shrunk."

The "solutions" strategy pioneered in the UK – selling a Mac bundled with software as a "Home Office" or "Family Mac" – has proved very successful. Too successful, in one respect: Molyneux confesses that Apple couldn't meet the demand for the "Creative Studio" bundle in particular. "Every other aspect of the 'solutions' strategy has been very well received – so much so that in the States they're replicating it."

This month, in fact, a fourth "solution" bundle is being announced in the US – the "Most Compatible Mac". Molyneux confirms that Apple will be bringing a version of it to Europe, but won't comment on what it might include. It does, however, reinforce Apple's "continuing commitment to the 'solutions' strategy, and to the consumer/SOHO market.

"In addition to that, we're talking with one of the major chains in the UK, and we're a long way down the path to having a unique product for a particular chain. So again, a firm commitment to the UK consumer market."

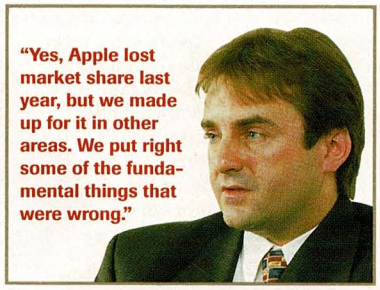
This "unique product" would still be Apple-branded and "solutions"-based, Molyneux confirms. "With the exception of the 4400, which is a no-frills, very high value-for-money product, the days of us piling them high and selling them cheap are gone – 'solutions' is where it's at. Customers tell us they like it, which is the most important thing, and we make reasonable profit doing it."

"In the quarter that caused all this stink, when you double-click on some of the figures, with the clones we actually *increased* our market share."

Marketing the Mac

What about making Macs and Mac software more readily available to those customers? "There are several strands to what we're doing," Molyneux explains. First is "strengthening developer relations" to ensure continuing development for the Mac.

Next comes getting products on the shelves, "and that's where our key challenge is. We continually face the argument with the major stores that if you represent *x*% of market share then that's the percentage of shelf space they'll give you for software. That's a tough one. With one or two exceptions, we've done a pretty good job of convincing them to allocate more, but it's an uphill struggle."



"Yes, Apple lost market share last year, but we made up for it in other areas. We put right some of the fundamental things that were wrong."

Another strategy Apple is trying is producing "little stickers with a Mac smiley face" and encouraging manufacturers and distributors to stick these on dual-format CD-ROM titles, so shoppers don't "assume it's just Windows.

"Trying to make them more visible on the shelves, and trying to educate the distributors and the developers, is an ongoing task. However," Molyneux adds, "Mac consumers are incredibly resourceful. You could argue that they shouldn't have to be, but they are, and they're used to buying by mail order. When you scratch the surface, as people do, you find that there are thousands and thousands of titles to choose from.

"I think the frustration you hear is from the average consumer who bought a Performa in a store and goes back and finds that there's only half a dozen titles in the store. That's an ongoing issue", but Apple is exploring solutions. Molyneux cites the example of PC World: "We've convinced them to hold much more stock. Their reluctance was due to the cost of holding stock that would get obsolete. So we worked with Softline and other distributors to introduce a

Top brass

For more forthright opinion from the helm of Apple, see our interview with Chief Operating Officer Gil Amelio in MACFORMAT 44. If you missed that issue, see page 144.

companies, enabling them to build Mac-compatible computers.

November Apple, IBM and Motorola announce plans to create the PowerPC Platform, a new low-cost computer design which uses industry-standard parts.

December Power Computing becomes the first Mac licensee, although it won't start selling computers until May 1995.

1995

January Apple has sold one million PowerMacs.

March DayStar announces plans for the Genesis MP, the first Mac-compatible to use several processors running in parallel.

June The PowerMac 9500/120 is Apple's fastest-ever machine by far. The boom in processor speeds opens new markets, such as video production.

July The PowerPC processor comes to the Performa range with the 5200 and 6200.

August The PowerBook 5300 is Apple's first portable to use the PowerPC chip. Despite improved speed and advanced design, it will gather a bad reputation from shortages and tales of batteries catching fire.

August The original PowerMacs bow out as Apple introduces the 7500 and 8500.

1996

January Apple shows the Mac OS running on a PowerPC Platform machine.

January Apple reports a huge loss of $740 million in three months, after huge price-cutting and poor sales predictions. 1,300 employees will lose their jobs as the firm trims back. Yet demand for Macs is higher than ever.

February Spindler resigns after being widely blamed for Apple's precarious position. Gil Amelio joins Apple as Chief Executive Officer. AC Markula also leaves as Amelio grasps the reins firmly.

February Motorola licenses the Mac OS and is also able to sub-license to other firms.

May IBM joins Motorola as a sub-licensing source.

August New Performas from Apple Europe lead the way in "solution"-based Macs – combinations of machine and software tailor-made for a specific set of tasks. Apple US chooses not to adopt the same approach, a decision it will live to regret by Christmas.

December Apple announces its intention to buy Steve Jobs's NeXT Software and use its systems as the basis for the Mac OS's successor. Jobs will work with Apple as an advisor.

1997

January Apple sets out its plans for Rhapsody, the codename for its new operating system.

January Apple announces a surprise $120 million loss, blaming the result on poor Performa sales in the US. European sales are far stronger, increasing by 50% in three months.

February Apple completely replaces its PowerMac range with faster machines, which adopt the practice of offering "solutions" bundles.

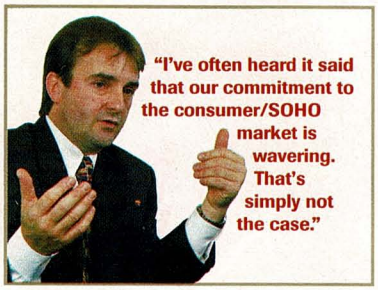
March Apple announces the release of Mac OS 8, codenamed Tempo, for July.

merchandising service, where they come in and rotate the retailer's stock regularly. This takes all the cost and the concern away from the retailer. In the pilot stores, the software titles occupy more shelf space and the perception in the store is better. It's in its early stages, but if we can convince other chains, then we'll improve availability at no risk to them. That's the key with retailers: it must be at no risk to them."

"This year the products will speak for themselves. Next year we'll see it moving up again. That's the plan."

What about the idea of AppleShops? "We've said we'd like to see Apple-branded chains of shops across Europe. We've done some pilot schemes in Europe – Denmark notably, where there was a chain of five. We've evaluated that for about a year, and we know what the shop's fittings will look like, the colours we'll be using, the fabrics and textures, the look and feel of the place. Much of it is down to location. We'll now choose one key location – probably in Paris, but maybe in London – and we'll see how that goes."

At present, "the consumer may have a choice between a high street chain which sometimes tries to 'cross-sell' him [sell him a different computer] and the Apple-Centre, which is maybe more business-orientated than he needs – many Apple-Centres don't even accept walk-in trade. So there is a need for something in the middle which has got Apple expertise in an accessible location and a non-threatening environment. That's what we're hoping the Apple-Shop will be."



"I've often heard it said that our commitment to the consumer/SOHO market is wavering. That's simply not the case."

Getting the message across

The question then is, how do you entice people into a Mac specialist shop? How do you persuade them that a Mac is a good choice? Molyneux replies that Apple is currently running a major "brand-awareness" campaign in the national press, weekend supplements and "lifestyle" magazines, "conveying the message that Apple has intrinsic values that no other computer company has" – the tag line being "Give your dreams a chance". On top of this there will be ads for specific products and "solutions".

"If you add all that together, it's reasonably potent, but personally," Molyneux adds, "I still feel that these are 'soft'. I would like to see a harder edge. Gil Amelio has made the commitment that we will have that.

"At our dealer roadshow, I showed a video of a guy making a presentation on a Windows machine, and it crashes, and people are shouting out 'Try typing autoexec.bat' and so on, and in the end somebody says 'Buy a Mac!' It's great! It's that kind of stuff – you know, poke you in the eye, don't mess around – that I think we need, on top of this branding campaign. What you will see from April-May onwards, in the UK and in Europe, is us interpreting this new, harder edge.

"Our biggest asset by far," Molyneux adds, "is the loyalty we have in our user base. 27 million people have bought our machines, and they're used probably by 50 million. That is a tremendous following, and the greatest thing we have in our favour is the evangelical zeal with which these people convert their friends. And we really don't take that for granted. All our advertising does try and bear in mind that we need to be giving our friends, our users, information, because we know they're our best sales force.

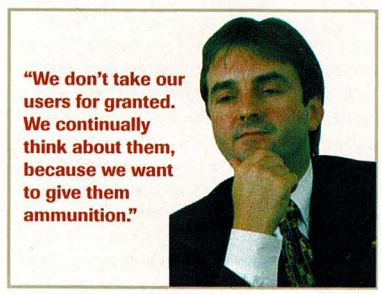
"We just need to tell a few more people a bit more forcefully some of the key messages. Just count the number of milestones that Apple has achieved and everyone else has eventually followed, right from the very first Mac using a mouse and a GUI, right the way through to QuickTime, multimedia, virtual reality, CDs in every machine – it's enormous, the number of firsts we've achieved.

"I think we'd all quietly agree that we've been off the boil for a couple of years," Molyneux admits, "but look at our new products – like the PowerBook 3400, the fastest notebook in the world. Nothing touches it, it just trashes everything else.

"We're paranoid now about sending products out unless they're absolutely as good as we can make them. So if there's any hint of anything – even a slight buffing of the edges as they come off the line – we won't release them. There's an obsession with quality control now."

And yet the press turns that into a negative, complaining that Apple's shipping products late again? "Yes. But it will get better, because the quality control imposed on an old system is now becoming part of the integrated process.

"It's a fact that Apple's lost market share, year on year," Molyneux concludes. "But you have to remember that when Amelio took the reins he planned a three-year turnaround, and year one we've only just finished. Year one was about getting the basics in order, getting the finances under control, management and quality. And that meant shipping less boxes but making more profit. So none of us should be surprised that our market share has fallen. We actually planned for that. This year will be about setting the products alight again – the new PowerBooks are just the beginning. And then next year we'll go for growth again.



"We don't take our users for granted. We continually think about them, because we want to give them ammunition."

"It's a long haul. It's not a flash in the pan. Yet what the press focus in on – and it drives me crazy – is the flash-in-the-pan results. It's a three-year strategy. And if you double-click on some of the figures, with the clones actually we didn't lose market share. So there are many sides to the story, and we only ever get to see one or two in the press."

Jon Molyneux tells a forceful story. More than that: you can bet that the innovations and successes of Apple UK will play a prominent part in writing the next chapter of the Apple story. ➤

50 Mac facts

Is your life lacking that certain something? Fill that gap as MacFormat presents 50 Mac facts to stun your friends with...

1. Over 26 million Macs have been sold. [Apple]
2. A new Mac is sold every nine seconds. [Source: Apple]
3. Research firm IDC predicts there will be a total of over 36 million Macs sold by 1999.
4. There are over 600,000 Macs in the UK. [Apple]
5. One in nine Macs being sold is a Mac-compatible from firms like Umax and Motorola. [Apple]

Computer Warehouse is the latest firm to offer Mac-compatibles.

6. There are 13 firms around the world currently offering Mac-compatible computers – Akia, Apple, APS Technologies, Computer Warehouse, DayStar, Gravis, Motorola, Pioneer, Power Computing, PowerTools, Umax, Vertegri Research and Vision Power.

Continued on page 44 ➤

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30 Pin Simms Mac II, LC, LCII, Q700, Q900	£27	£39	£69	-	-
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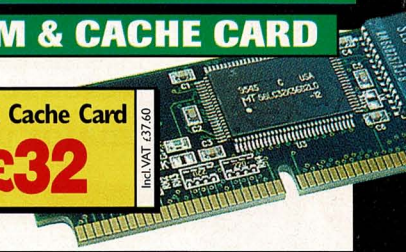
168 Pin Dimms PM7200, 7500, 7600, 7300, 8200, 8500, 8600, 9500, 9600, Umax Pulsar	-	£37	£59	£125	£219
168 Pin EDO Dimms PM4000,Motorola Starmax	-	£42	£69	£139	£239

VRAM & CACHE CARD



1Mb VRAM DIMM 1Mb VRAM 7200/7500/8500	V1024	£24
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256k Cache Card 256k Cache Card 6100/7100/8100	CC256	£32

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1.3Gb Disk	M89109	£29.99
2.6Gb Disk	M891204	£39.95

Iomega Disks

100Mb Zip Disk	D100ZIPCART	£9.70
1Gb Jaz Disk	DIJAZCART	£62

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120m DAT Tape	M89547	£12.49

Syquest Cartridges

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88Mb Cartridge	MSYQ88	£29.99
1.3Gb Cartridge	DSYQ1.3C	£78

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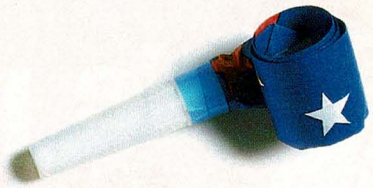


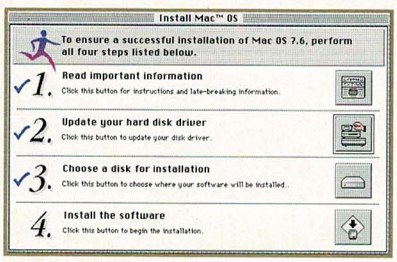
PRICE	£94.00 (£70.50 before the end of April)	**ON SALE**	Now	**CONTACT**	Claris on 0345 413060	**WEB SITE**	http://www.claris.com/intl/uk/
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**HD space:** 40Mb minimum		

Mac OS 7.6 on test

Over two years after the release of System 7.5, Apple has released Mac OS 7.6, merging key new technologies into one major update. Jonathan Ferman asks: is it worth buying?

ON THE CD
Official Interactive Apple Guide

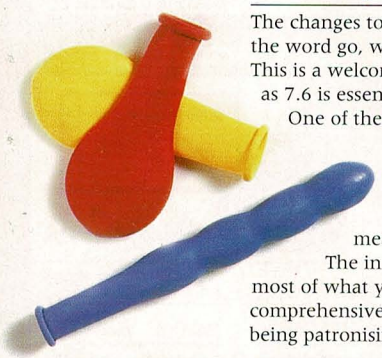
Two years ago, Apple finally gave the Mac's operating system a name. The Mac OS label signifies a commitment from Apple to computer manufacturers that it is serious about licensing its operating system. Never has this been more evident than in the new Mac OS 7.6, where Apple has withdrawn almost all references to the Macintosh.


Install Mac™ OS
To ensure a successful installation of Mac OS 7.6, perform all four steps listed below.
1. Read important information
Click this button for instructions and late-breaking information.
2. Update your hard disk driver
Click this button to update your disk driver.
3. Choose a disk for installation
Click this button to choose where your software will be installed.
4. Install the software
Click this button to begin the installation.

Let Apple's new installer take you through the installation process step by step, ensuring that you install the right system for your Mac.

It's replaced the menu item **About This Macintosh,** for example, with **About This Computer;** the Control Panel **Macintosh Easy Open** has become **Mac OS Easy Open;** and when the computer starts up, it no longer says "Welcome to Macintosh", but rather "Welcome to Mac OS". These changes are cosmetic, designed to reflect the fact that you no longer need to buy a computer from Apple to run the Mac OS.

Installing Mac OS 7.6



The changes to the Mac OS begin from the word go, with a new type of installer. This is a welcome addition to the Mac OS as 7.6 is essentially a collection of parts.

One of the nice things about the new installer is that you can install all the software components in one go, rather than on a piecemeal basis.

The installation manual covers most of what you need to know – it's comprehensive and well written without being patronising. To make installation of 7.6 successful, though, you are asked to go through a four-stage process, with buttons that move you from stage to stage. The first step is to read the **Important Information** file. In here you'll learn that PowerTalk is no longer supported, among other details. PowerTalk provided electronic mail (albeit at a high memory cost), but its best feature was having one password to access all servers. Electronic mail services are now handled by *Cyberdog*, Apple's new Internet browser technology (see the feature in MACFORMAT 49).

The second phase of the installation is updating your hard disk driver. If you don't do this, it can lead to problems such as the computer not starting up. If you have an Apple Mac or an Apple hard drive, you should use the drivers provided with Mac OS 7.6 – otherwise you must use the latest version of the driver that came with your hard disk.

In step three you can go on to select which disk you want the software installed on. Mac OS 7.6 takes up between 40 and 120Mb of disk space, depending on how much of the optional software you install. 120Mb seems an obscene amount of hard disk space for an operating system – not so many years ago the System ran from a single floppy disk. Fortunately, you are unlikely to need all the optional software, and should find a typical installation is a slightly more reasonable 70Mb.

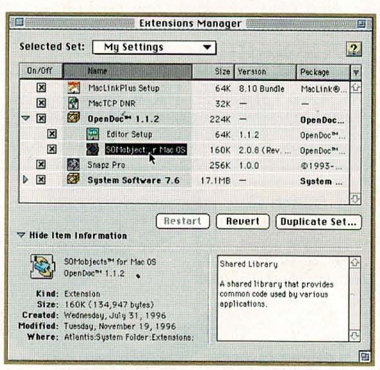
Lastly, you can install the OS itself. Simple check boxes enable you to pick which optional software, such as QuickDraw GX and English Text-to-Speech, you want to install – and the installer will check your hard disk for any problems before proceeding, thus ensuring that Mac OS 7.6 is as stable as possible.

If you don't have a CD-ROM drive, you'll be glad to know that Mac OS 7.6 is also available on floppy disk. Here's the bad news: it comes on a towering 51 floppies, and Apple reckons that it will take around one hour and 20 minutes to install, so you better have a good book to read. Thanks to the number of disks, Claris, which handles sales of the Mac OS, is likely to charge extra for the floppy version, although it can't yet confirm how much that will be.

Using Mac OS 7.6

Once the installation is over and you have restarted, you may be disappointed to see that your Mac's Desktop looks almost exactly the same. The 3D Copland look that will define the Mac in future won't come until Mac OS 8, but looks aren't everything and most of the new features of Mac OS 7.6 are important.

One area which did get the Copland look is the new Extensions Manager. This is a radical and timely overhaul of the utility which looks after various System



The new-look Extensions Manager gives you more information about each Extension and you can view them in groups.

50 Mac facts continued

7 There are over 14,000 programs available for the Mac today. [Apple]

8 There are over 1,900 programs available only on the Mac. [Apple]

9 80% of computers used in the professional publishing, advertising, design and printing industries are Macs. [Griffin Dix]

***Marathon Infinity:* it's frantic, it's addictive and it's Mac-only!**

10 60% of computers used in music production and post-production are Macs. [Piper Jaffray]

11 54% of all multimedia software development is done on a Mac. [GISTICS]

12 30% of computers used in film and video post-production work are Macs. [Phillips Business Information]

13 Mac program *ElectricImage* leads the way in video special effects and production work. Some of the films to include Mac-based special effects include *Star*

Included with 7.6

AOL version 3
Apple Guide 2.1.1
Apple Internet Connection Kit 1.2
Apple Remote Access 2.1
Apple System Profiler 1.1.2
CD-ROM Setup 5.3.1
ColorSync 2.1.1
Cyberdog 1.2.1
Desktop Printing 2.0.2
Energy Saver 2.0.3
Extensions Manager 4.0
Finder 7.5.6
LaserWriter 8.4.2
MacLinkPlus 8.1
Mac OS Easy Open 1.1.3
Multiprocessor support 1.4
OpenDoc 1.1.2
OpenDoc Essentials Kit 1.0.1
Open Transport 1.1.1
Open Transport PPP 1.0
PC Exchange 2.1.1
QuickDraw 3D 1.0.6
QuickDraw GX 1.1.5
QuickTime 2.5
TCP/IP 1.1.1
Text-to-Speech 1.5

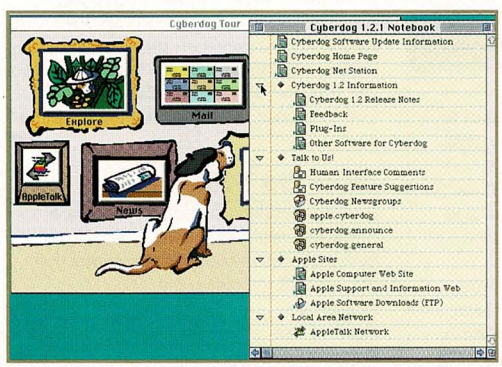
components such as Control Panels and Extensions. You can now restart your Mac within the Extensions Manager. An information window now describes what each Extension does. The best feature, though, is the way many Extensions can be grouped. If you want to turn off all the QuickTime components, for example, you can click on one box rather than sifting through the entire list in search of the right Extensions.

Reliability

While the new Installer and Extensions Manager are the most visual parts of the new OS, it is best to think of Mac OS 7.6 as a step towards Apple's new OS strategy. Mac OS 7.6 is primarily concerned with improving reliability. Overall it does seem slightly quicker, at least on PowerPC-based Macs. The startup time has clearly been improved. You really notice the speed improvement when you restart, since input devices like the keyboard and mouse are no longer reinitialised. 7.6 also saves data in the disk cache more frequently, which helps to reduce the chance of a crash corrupting the hard disk. The Finder also has more memory allocated to it, cutting the number of "Out of Memory" errors (common in previous releases). The number of potential Extension conflicts has also been reduced. The Modern Memory Manager is now always on, improving PowerMacs' performance (but not good for running very old pre-PowerPC software).

Apple is actively improving performance of the Mac OS on PowerMacs. An example is the PowerPC-native LaserWriter 8.4.2 printer driver provided with Mac OS 7.6. The time it takes for the first page to print has been reduced and you can now switch between printers on a network using the Control Strip.

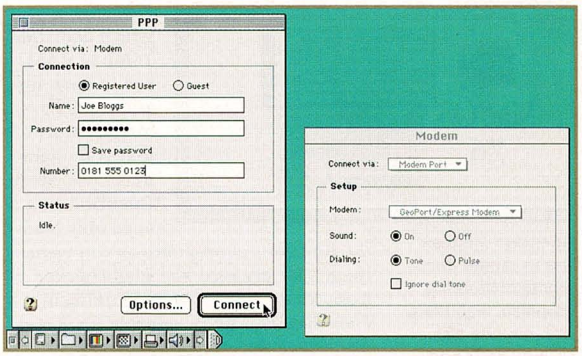
Your Mac's Virtual Memory feature is vital if you have very little RAM (which means 8Mb nowadays), although it's still nowhere near as fast as adding real RAM. The VM improvements in Mac OS 7.6 mean reduced launch times for applications, better stability and the ability to have more programs open at once. In tests by Apple on a Power Mac 7200/75 and 8100/80, *Microsoft Word* launched up to 45% faster and *Photoshop* launched up to 50% faster. Performance gains will vary depending on the Mac, the Virtual Memory setting and the applications you use.



***Cyberdog* integrates World Wide Web, FTP, server and mail services into one package, where information need only be a single click away.**

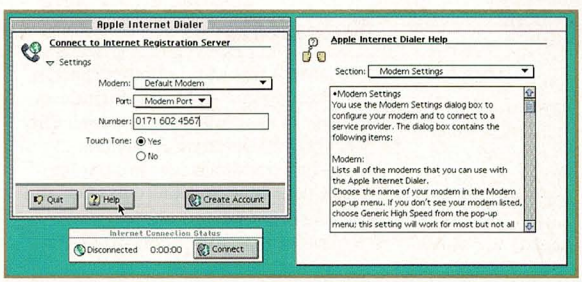
Internet

The Internet is a major focus within Mac OS 7.6. Your Mac will use Open Transport, Apple's networking system, to connect to the Internet. The new Open Transport PPP enables you to dial through your Service Provider's server to connect to the Internet, with data then getting passed through the server back to your Mac. Open Transport should improve Internet data transfer rates for PowerMacs by as much as 40% over its predecessor MacTCP. Performance improvements are less impressive on 68K machines, but Open Transport does mean that you can change your Internet connection set-up without having to restart your Mac.



Mac OS 7.6 comes with Open Transport PPP for dialling into your Internet service provider and connecting to the Internet.

If you're new to the Net, the *Apple Internet Connection Kit (AICK)* will take a step-by-step approach to getting you online, in a sort of question-and-answer session for your Mac. *AICK* includes popular Internet applications such as *Netscape Navigator 3* and *Claris Emailer Lite*. Mac OS 7.6's value has certainly been boosted with the inclusion of *AICK*, as Claris sells it as a stand-alone package at a cost of around £50.


Apple Internet Dialer
Connect to Internet Registration Server
Settings
Modem: Default Modem
Port: Modem Port
Number: 0171 602 4567
Touch Tone: Yes
No
Quit
Help
Create Account
Internet Connection Status
Disconnected 0:00:00
Connect
Apple Internet Dialer Help
Section: Modem Settings
•Modem Settings
You use the Modem Settings dialog box to configure your modem and to connect to a service provider. The dialog box contains the following items:
Modem:
Lists all of the modems that you can use with the Apple Internet Dialer.
Choose the name of your modem in the Modem pop-up menu. If you don't see your modem listed, choose Generic High Speed from the pop-up menu: this setting will work for most but not all

The *Apple Internet Connection Kit* gives you everything you need to get on-line and surf (bar the modem!).

Apple also provides the funky-sounding *Cyberdog*, which will access the World Wide Web, enable you to read your e-mail, log on to FTP sites to download software and even give you access to file servers. *Cyberdog* is based on OpenDoc, Apple's component software system. Say you had a program like ➤

Trek: First Contact...

14 ...Disney's new production of *101 Dalmatians*...

15 ...*Mission Impossible*...

16 ...*Batman Forever*...

17 ...and the entire revamped special editions of the *Star Wars* trilogy. [ElectricImage, Inc]

18 25% of all Web browsing is done on a Mac. [META Group]

19 Over half of all Macs have Internet access. [Apple]

20 One in five of the server computers used to host Web pages and other material for the Internet is a Mac. [Georgia Institute of Technology]

21 64% of professional designers designing material for Web pages use a Mac. *[Web Week]*

22 41% of all Web graphics are created on a Mac. [Mirai]

23 Sales of Mac Web page editors and other Internet creative tools between January and September 1996 increased by 116%, compared to the same period in 1995. [Software Publishers Assoc.]

Continued overleaf ➤

Welcome to Mac OS 7.6
Mac OS 7.6 includes up-to-date versions of OpenDoc (with Apple Live Objects Essentials), Cyberdog, Open Transport, and Apple's multimedia technologies, as well as new, enhanced versions of the Installer, Extensions Manager, PC
Mac OS 7.6
Welcome
Record
Stop
Pause
Play

OpenDoc enables you to create documents containing graphics, web links, text, sounds, 3D objects and QuickTime movies.

Photoshop 4, which demands 16Mb of RAM just to open up, and contains many features that you might never use. With OpenDoc, you need only load the functions of programs as you want them – for instance, the spell-checker from *Nisus* – while you're working in *Photoshop*. This saves valuable RAM and could spell the end for bloated applications. Mac OS 7.6 marks the first time that OpenDoc has shipped with a Mac OS release. For more details on component software, see our cover feature last issue.

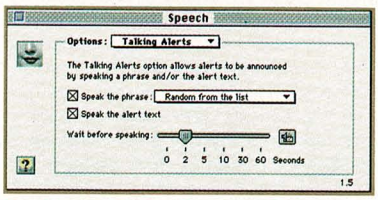
It's OpenDoc that makes *Cyberdog* something special: through it, you can embed Web links within your documents. Rather than having a screen grab of a Web site, you can have the actual site embedded in the page, live and ready for users to navigate. You can e-mail your OpenDoc document to other *Cyberdog* users and they will be able to view the same page, with any graphics, text or charts that you may have added.

Multimedia

Multimedia plays an important part in the Mac OS, and Apple has included a number of multimedia technologies in Mac OS 7.6. The main element is QuickTime, which is best known for giving your Mac the ability to view and edit video, sound and music.

Another major element of Apple's multimedia software is QuickDraw 3D. This enables you to view and edit 3D models. Sadly the version included (1.0.6) is not the latest – Apple says version 1.5 just missed the boat.

Mac OS 7.6 also includes an enhanced version of Text-to-Speech, including a **Talking Alerts** option. (An alert box informs you what is going on – a problem, for instance, or the fact that a piece of software has been installed successfully.) **Talking Alerts** is able both to announce an alert and to speak the text within the alert box. This may not sound essential, but it can be quite handy if you're running any Mac you don't regularly keep an eye on.


Speech
Options: Talking Alerts
The Talking Alerts option allows alerts to be announced by speaking a phrase and/or the alert text.
Speak the phrase: Random from the list
Speak the alert text
Wait before speaking:
0 2 5 10 30 60 Seconds
1.5

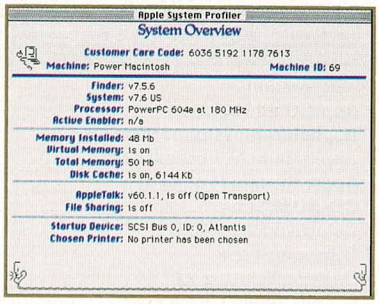
The Speech Control Panel enables your Mac to talk to you! This even includes speaking the contents of dialogue boxes.

Although not part of the multimedia software, the new screen capture options are worthy of mention. You can now choose to capture just a window or a selected area of the screen, and the screen capture can also be copied to the Clipboard or saved as a file.

Across the borders

If you have ever had to work with files from *Windows 95*, then you'll understand the pain that previous versions of *PC Exchange* often caused. *PC Exchange* has been updated in Mac OS 7.6 to include support for the DMF disk format often used by *Windows 95*. It's part of the solution used by the Mac OS to open, view and save DOS and *Windows* files into either Mac or PC formats. *PC Exchange* enables your Mac to read these files, while **Mac OS Easy Open** suggests which application your Mac could use to view the data.

The translation process is helped by *MacLinkPlus*, a utility with lots of built-in translators which will enable you to read a PC-formatted *Excel* worksheet within *ClarisWorks*, for example.


Apple System Profiler
System Overview
Customer Care Code: 6036 5192 1178 7613
Machine: Power Macintosh
Machine ID: 69
Finder: v7.5.6
System: v7.6 US
Processor: PowerPC 604e at 180 MHz
Active Enabler: n/a
Memory Installed: 48 Mb
Virtual Memory: is on
Total Memory: 50 Mb
Disk Cache: is on, 6144 Kb
AppleTalk: v60.1.1, is off (Open Transport)
File Sharing: is off
Startup Device: SCSI Bus 0, ID: 0, Atlantis
Chosen Printer: No printer has been chosen

The Apple System Profiler presents the information about your Mac that technical support staff would ask for.

The verdict on 7.6

In the context of Apple's overall OS strategy, Mac OS 7.6 is the first of several major reference releases set to come out every year. In the UK this is likely to mean a new release each autumn, depending on the amount of localisation work involved.

While 7.6 is not quite the groundbreaking system you might have wanted, its stability makes it an improvement. It's certainly an essential purchase if you use the Internet or multimedia – or even if you just want your Mac to stop crashing so much! **MF**

Mac OS 7.6

A recommended upgrade if you have a PowerMac and worth considering if you own a 68K Mac. Mac OS 7.6 ensures that the Mac OS remains great.

Features	**85%**
Ease of use	**84%**
Documentation	**82%**
Value for money	**80%**

MF rating 82%

Unsupported machines

If you own a 68K Mac (non-PowerMac), then you'll need the *CFM-68K Runtime Enabler* in order to be able to run LaserWriter 8.4.2, OpenDoc or *Cyberdog* – and we've included it on this issue's Cover CD. While Mac OS 7.6 now supports the broadest range of computers ever, there are a number of machines that won't work with it, mainly 68000 and 68020 chip based. These are:

- **Macintosh Portable**
- **Macintosh Plus**
- **PowerBook 100**
- **Macintosh SE & SE/30**
- **Macintosh II, IIx & IIcx**
- **Macintosh LC**
- **Macintosh Classic**

Mac OS 7.6 does not support Macs upgraded to 68030 or 68040 with a processor upgrade card. The previous Mac OS release, System 7.5.5, supports all Macs back to the Macintosh Plus. So if you have one of the models above, it's best to stick with your current operating system or upgrade to System 7.5.5.

If you own a 68030 Mac or below, however, bear in mind that Mac OS 7.6.1 will be the last version of the Mac OS to support your machine. The next major reference release, July's Mac OS 8, is designed for 68040 and PowerPC-based machines only.

50 Mac facts continued

24 The Macintosh is named after a type of apple, a convention continued with the Pippin multimedia console set to appear in Europe in the spring.

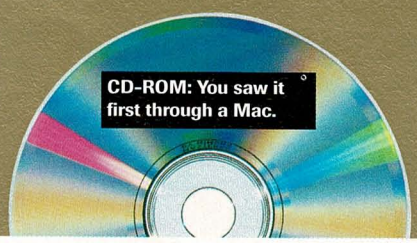
25 Graphic artist Susan Kare created the icons used in the first Mac interface, with many of the design ideas surviving still.

26 The Mac was the first personal computer to include built-in drives for 3.5-inch floppy disks, which have remained a ubiquitous storage medium for over 12 years. [Apple]

27 The Mac was the first personal computer able to display photo-realistic images in millions of colours. [Apple]

28 The Mac was the first personal computer to build in networking hardware. [Apple]

29 The Mac was the first personal computer to include a built-in CD-ROM drive. [Apple]

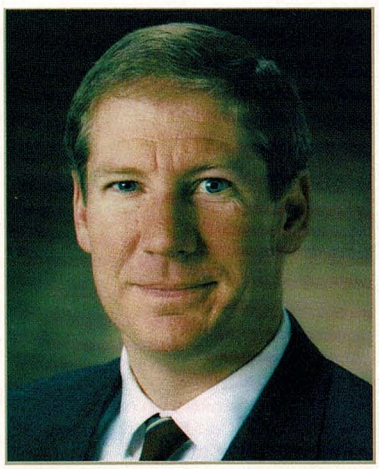


Apple's overture

Apple has a new operating system, which it claims will silence the critics once and for all, under development. But the road to enlightenment is long and hard, as Lindsay Bruce discovers.

There is no computer owner more passionate than the Mac owner. You can get religious about it: sit in a pub with a *Windows 95* devotee, and suddenly you'll find yourself evangelising the Mac. You'll rant about its ease of use, its leadership in the fields of graphics and multimedia, its friendly personality. Given the choice, Mac users will choose the Mac OS any day.

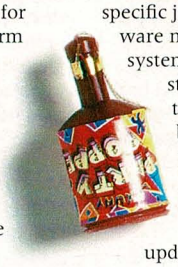
By the end of the year, though, you'll be able to choose a brand-new operating system from Apple – one that is more powerful and offers more advanced features than the Mac OS. It's an operating system that delivers where Copland – Apple's last attempt at a Mac OS overhaul – failed, an operating system for the future. Apple is calling it Rhapsody, but will it really be music to your ears?



Claris's Jim Reed sees the upcoming Mac OS releases as critical to Apple. Mac OS 7.6 is about stability and new Apple technology, Mac OS 8.0 is the "new user experience", and Rhapsody is the goal.

The software

Rhapsody is not just another system upgrade, it's a whole new way of life. Based on NeXT's OpenStep operating system (see News, MACFORMAT 48), it brings features previously found only on more professional workstations to the humble little Mac. Multi-tasking, for instance, will enable you to perform tasks such as copying files in the background, while you type a report and render a 3D image. Symmetric multiple processing will take advantage of the full power of two or more processors to complete your tasks, while protected memory will reduce the risk of applications crashing your Mac and enable you to continue working in other programs if the worst does happen to one program. And Rhapsody's scalable architecture will ensure that the same system will run on a PowerBook, a home Performa or an Internet server.

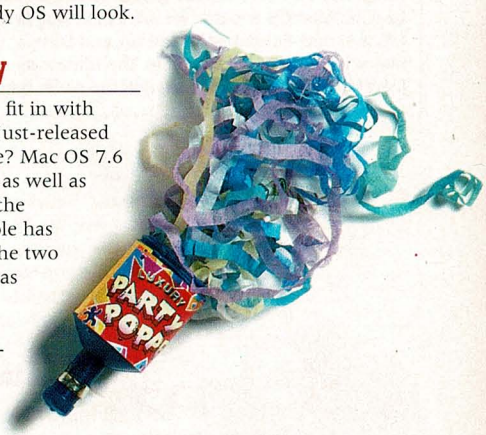


Best of all, it will look and feel much like your old Mac and will run the vast majority of your existing applications.

Rhapsody is based on a micro-kernel system, a hardware-independent core of software components that handles specific jobs, overseen by a sort of software manager. Found in all Unix-based systems, the micro-kernel provides a standard for the operating system to work on. Each component can be upgraded or even entirely rewritten without causing compatibility problems with other components. The entire OS, then, is extremely easy to update, develop for, and port to other platforms. Two environments run on top of it: a full version of the Mac OS (currently codenamed Blue Box) enables you to run existing software – Apple already has *Photoshop* working – while the revamped OpenStep environment (Yellow Box) offers the aforementioned new features. The two share many resources, but are completely separate – so if one crashes, the other is, thankfully, unaffected. Microsoft's *Windows NT* (a version of *Windows* for professional workstations) already offers these kind of features, but without the intuitive ease of use associated with the Mac. For grafted on top of all this will be a Macintosh look and feel. You needn't ever be aware that there are two separate environments, and will see only what looks like a highly-evolved Mac. The July release of Mac OS 8 will offer the first indication of how the Rhapsody OS will look.

The strategy

How does all this fit in with Mac OS 7.6, the just-released latest OS upgrade? Mac OS 7.6 is about stability, as well as fully integrating the technologies Apple has developed over the two years since 7.5 was released. These include Open Transport, QuickDraw 3D and OpenDoc. There are also significant speed improvements – most noticeably that printing and start-up operations are about 30% faster.



Mac OS 8 (the OS formerly known as Tempo) will deliver even bigger speed enhancements with the PowerPC-native Finder, and will of course include the 3D interface, multi-tasking and built-in Java support. Allegro (set for July 1998) will provide greater Internet support. Sonata, the last of the scheduled upgrades, due in 1999, is something of a dark horse and no details are available as yet. Rhapsody will be developed alongside these ➤

30 The Mac was the first personal computer able to display video sequences. [Apple]

31 More than half of all Macs are running System 7.5. [Apple]

32 The Mac's operating system didn't formally receive a name until September 1994, when Apple announced its intention to license the Mac OS to other firms. Until that point, it had always gone under the generic title of the System.

33 Dataquest has assessed the Mac's current market share of the world personal computer market as 7.4%.

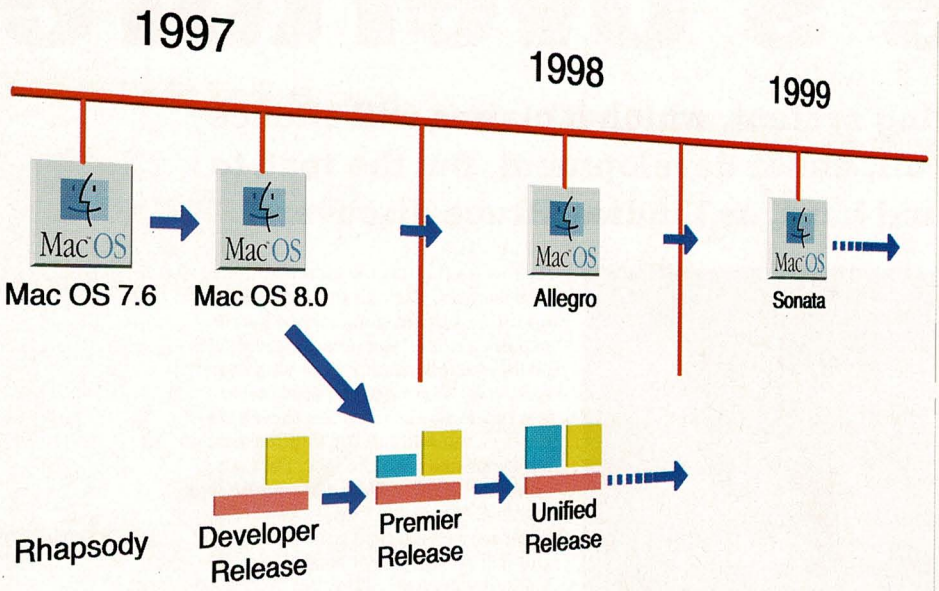
34 The Software Publishers Association, though, has assessed the Mac's market share of the world software market as 12%. [January to September 1996]

35 Mac owners spent over $1,400 million on software in 1995. [Software Publishers Association]

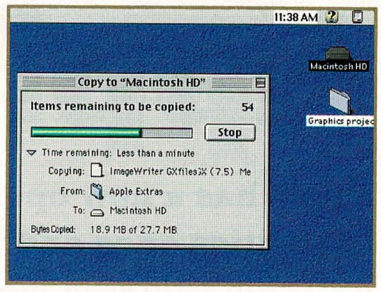
36 The average Mac user spends most of their time on general productivity tasks, such as word processing. The average user spends 10.4 hours a week on productivity, compared to 3.5 hours on DTP and graphics, 2.2 hours using the Net, 1.3 hours on learning and 1 hour on games. [Apple]

Continued overleaf ➤

The Mac OS roadmap

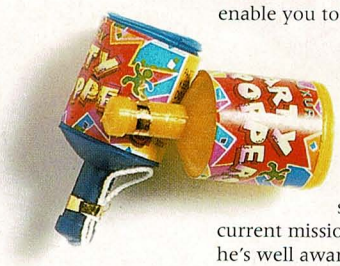


Rhapsody and the Mac OS are being developed side by side. Mac OS 8 is due for release in July in the US, and mid-September for the UK and Europe, with major updates to follow yearly. The Rhapsody Developer Release is due around the same time as Mac OS 8, with a Premier Release out in early 1998. This is designed to show off Rhapsody's features so larger companies can plan to make the move to the new OS. The finished version will be available to everyone around the middle of 1998.



Mac OS 8 will bring many new features to the Mac, such as a PowerPC-native Finder, multi-tasking and a 3D interface.

Mac OS updates, so you'll be able to choose between them. Apple intends to run this dual-OS strategy through 1998 and beyond (see the "Roadmap" above), but eventually the two operating systems will merge. The two-year-plus plan should ensure a smooth transition and enable you to upgrade at your leisure.



Crossing over

Jim Reed is Claris's Marketing Manager for Apple software products in the States – in short, he sells the Mac OS. His current mission is to sell Mac OS 7.6, but he's well aware of how the current Mac OS fits into the bigger picture. Reed is realistic about current user needs, predicting that while most people will eventually move over to Rhapsody, it will be a slow process. "That's why we're going to continue to develop the Mac OS components," he says. "Rhapsody provides multi-tasking, multi-processor support, and protected memory. We went out to users who said 'We've got to have these things!' And we asked 'Why?' They said: 'I don't know!' "

Some people might think "Fab, a new OS – let's have it," even when the most sophisticated program they ever run is *ClarisWorks*. If that's the case with you, you won't actually need to render in the background and you certainly won't need protected memory. Reed goes on to say that over the coming months, Apple's strategy to help you pick the right OS will become clearer – for some, the choice of upgrade will be made as new versions of the Mac OS appear and you acquire the features you actually need.

"When Tempo [Mac OS 8.0] comes out and we start showing you more of that and the features it has," says Reed, "that's really going satisfy a lot of people because it addresses the issues they have. Finder performance is going to be much improved and you'll have multi-tasking too. Okay, it doesn't have protected memory, but a lot of issues they have are getting addressed [in Tempo]. Then down the road in 1998, you can decide when

Copland: The Mac OS that

Copland was the code-name for Apple's last attempt at a complete rewrite of the Mac OS. Apple started talking seriously about its OS for the future three years ago, showing key features such as multi-tasking at trade shows. Like Rhapsody, Copland was based on a micro-kernel architecture that would make it easy to develop for and expand. Apple poured more than three years of investment into the OS and it never shipped. Why?

Copland became a panacea for the Mac OS, becoming more and more sophisticated as users demanded more advanced features. In the end, it failed to arrive because it was too complex. Apple couldn't make it stable enough to be an alternative to System 7. After many delays and several abortive developer releases, Apple axed the project, breaking it up into smaller pieces to be delivered in future system updates. A large part of Tempo, the next major Mac OS release, is based on Copland. Ironically, Tempo has adopted Copland's official moniker of Mac OS 8.

What went wrong with Copland? "I'm not sure that would be the right way to describe Copland – 'What went wrong'," Apple UK's Jon Molyneux says, "Because there are many things right about it. You're seeing aspects of it already – for instance, Tempo will incorporate many of Copland's Finder

50 Mac facts continued

37 When people buying their first Mac were asked what they intended to do with it, 90% mentioned productivity, 67% mentioned publishing and 61% mentioned games. [Apple]

38 Around 60% of people who buy a Mac invest in additional software within six months. The most popular extra programs are graphics, games and utilities. [Apple]

39 Games accounted for 45% of Mac software sales in the last quarter of 1996. [Apple]

40 Mac owners bought over four million games in 1996. [PC Data]

41 The best-selling Mac business program of the year so far is *Microsoft Office*. [US distributor Merisel figures for January and February]

42 The best-selling design and graphics program of the year so far is *Kai's Power Goo*. [Merisel]

***Kai's Power Goo* is seeing off all challenges for the top graphics spot.**

Anatomy of Rhapsody

Rhapsody will roll the Mac OS environment, a Java Virtual Machine and the advanced OpenStep architecture into one platform-independent operating system. Best of all, it will look and feel like a Mac.

Part of Rhapsody is a full Mac OS enviroment that runs on top of the micro-kernel. This will enable you to run most existing Mac software, with the exception of a few programs which access hardware directly.

The micro-kernel makes Rhapsody very easy to develop for. The micro-kernel is the interface between the machine's hardware and the operating system. This means the same OS will run on any machine, regardless of its configuration.

At the moment, the hardware that Rhapsody runs on is purely PowerPC-based, as this is the area Apple is concentrating on. However, it hasn't ruled out porting it to other platforms – although it's unlikely to run on non-PowerMacs.

On top of the Mac OS and OpenStep enviroments will be an advanced Mac-like interface. To the user, the complexity of the OS beneath will be hidden, and it will look and feel very much like the forthcoming Mac OS 8.

Java will run on Rhapsody via a Virtual Machine within OpenStep. This will enable you to run Java-based applets as if they were ordinary applications. At present, most people run them within programs such as *Netscape*.

OpenStep is the part of the OS that offers the biggest new features, such as protected memory, pre-emptive multi-tasking and universal multiple-processing.

you want to migrate into the Rhapsody area, and it's you who decides that. You can run Mac applications in both, and from our side that's a much better scenario than we had [with Copland].

You can run System 7 [and beyond] applications on the Rhapsody side – before, with Copland, you had to pick and choose. You either had to jump the fence or not – you couldn't straddle it."

New and improved

Why move to Rhapsody in the first place? The problem with the Mac OS as it stands is that its architecture isn't flexible enough to deliver mature operating system features – it was tried with Copland and it failed. Apple is finding it tough to get the Mac OS into large corporations, who are using Windows NT today precisely because of its multi-tasking and protected memory features. Reed says Apple has a riposte with Rhapsody. "The development environment within OpenStep [and Rhapsody] is much easier, and once you've done that you can distribute it out within various communities like Macintosh and possibly NT."

This is where Rhapsody has huge potential for Apple, as it will enable the firm to challenge other operating systems on their own ground for the first time – for instance, Intel-processor-based PCs and workstations. Because the operating system is based on a micro-kernel, it is platform independent: Rhapsody will be able to run on virtually any machine Apple wishes it to, though Apple is unlikely to offer PC users the ability to run existing Mac software.

Jim Reed sees all this as a consideration for the future, though, and says Apple's priority is to bring Rhapsody to Mac users: "Obviously the focus is on bringing Rhapsody to PowerPC first. But the code is pretty portable, so you can easily adapt it. Also, part of the focus has been on Java components, so the hardware [it runs on] is less an issue."

The new OS is over a year away, but Apple is confident Rhapsody will arrive on time, changing the Mac forever and marking a new milestone for Apple. **MF**

never was

features, which are tremendous. What happened is that it was pulled in so many directions over a period of time that we were unable to clarify what was really key to get that System to market in a timely fashion. It got delayed and it digressed along a few routes along the way, and with a 20 year old operating system we couldn't wait any longer for an OS to take us into the millennium.

"So rather than say what went wrong, I think it's important to say 'Well, what have we done right and how will we use that investment?' When Rhapsody is released, many of Copland's features will be in there, so it's the best of both worlds."

Mac OS fix

The next version of the Mac OS set for release is actually 7.6.1, a minor update to Mac OS 7.6 set for the spring. The free update will enable some Macs currently unable to run Mac OS 7.6 to do so, and will eliminate more Type 11 memory errors.

43 The best-selling home education program of the year so far is Microsoft's *Magic Schoolbus: The Human Body.* [Merisel]

44 Sales of home education programs on the Mac went up 33% between June and September 1996. [SPA]

45 63% of all computers used in US schools are Macs. [QED]

46 The Mac can emulate 29 different types of computer and games console, including Windows 95, Windows 3.1, the Atari ST, the Amiga and the Super Nintendo. [emulation.net]

47 The new single-currency Euro banknotes, set for distribution in 1999, were designed on a Mac. [Design firm FOXCS Disseny]

48 There are 35 viruses on the Mac, compared to over 10,000 on the PC. [Symantec Antivirus Research Centre]

49 The Mac OS comes in 35 different languages. [Apple]

50 More than 60 million people use Macs. [Apple]

If you've got a Mac fact that we've missed out, send it to us at: "Did you know?", MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

50 Macs!

Want a Mac but don't want to empty your wallet? Now you have more than ever to choose from. Over the next eight pages, MACFORMAT presents the definitive buyer's guide to 50 Macs and Mac-compatible computers.

Since Apple licensed the Mac OS to other manufacturers three years ago, the number of computers with the friendly Mac interface has boomed. Four years ago, there were less than a dozen Mac models to choose from – today you can choose between exactly 50 models to buy in the UK.

In fact, there are over 70 different Mac variations available, once you count the various permutations of memory size, processor speed and included software. Now you don't have to buy a Mac from Apple: you can buy it from Power Computing, Motorola, DayStar, Umax and the UK's very own Computer Warehouse.

Something for everyone

Most of the manufacturers produce a range of Macs to suit everyone's pocket, whether you're a professional graphics artist or a home user. With around a dozen Macs covering any one area of the market, it's difficult to choose one that suits you. It's a question of striking a balance between four criteria: power, upgradability, extra features and bundled software.

In most cases you can make a reasonable assessment of a Mac's typical processing power by looking at two straightforward figures: the type of chip and the clock speed.

A chip's clock speed, measured in Megahertz (MHz), defines its raw speed. While the first Macs' 8MHz processor was pretty fast for 1984, today's fastest Macs can call on 225MHz of processing power. But this figure isn't the whole story.

Any new Mac will be based on one of only two chips, the PowerPC 603e and the 604e. A 604e-based Mac is typically 50% faster than a 603e-based Mac *running at the same clock speed*. Factors like the size of the chip's Level 2 cache and the amount of RAM the Mac has will also make a difference.

Upgradability means the number of PCI slots, and whether the chip is on a daughterboard for easier upgrading. Extra features could include video ports, a built-in modem or an Ethernet connection.

Bundled software can mean all you need is in the box, or it can be a sweetener, a little extra that gives one Mac more appeal. You'll find some great bundle deals in the next eight pages. And do check whether a monitor is included in the price. On page 56 you'll find a complete maker-by-maker listing, but first, here's a chance to find a Mac at the right price for you (VAT *included* in all cases), with full details of the 50 core Mac models.

Under £1,000

This price bracket is divided between Macs that have have had their prices cut after being superceded by faster machines (the Power 100, for example), and newcomers stripped to the bone to offer a speedy machine for basic needs. Is it worth buying a machine with limited upgrade options? If it fulfills your current *and* future needs, then it's a resounding yes. Don't be tempted too much by the low prices, though: there's nothing more frustrating than buying a Mac only to realise a few months later than it's under-powered and can't be upgraded.

£1,001 to £1,500

Increase your budget slightly and you'll find a lot more Macs to choose from. Most of them are aimed at business users who want to run word-processing, database, and spreadsheet applications. There's also something for the home user, however – notably the Apple Performa 6320 and the Apple Family Mac, both of which come with lots of bundled software and a built-in modem. If you're a second-time or experienced buyer, the bundled software may be of less use. You still won't find anything with a 604e processor at this price, though, so speed freaks may want to save up some more.

Jargon Busters

CPU: The Central Processing Unit is the chip that does the bulk of the work inside your Mac. Note that the term CPU is also often used to refer to the Mac as a whole, minus its monitor, keyboard and mouse.

Daughterboard: Many modern Macs have their processor on a separate card from the main motherboard. It's a simple matter to swap this daughterboard with one holding a faster chip.

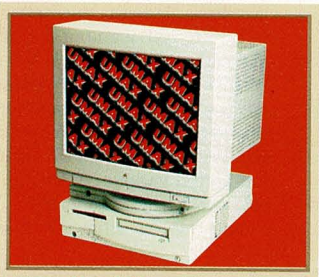
Level 2 cache: A portion of high speed RAM dedicated to storing frequently used data. The larger the cache, the faster the Mac goes. Caches come in 256K, 512Mb, and 1Mb sizes and in most cases can be upgraded.

NuBus: The expansion bus architecture used on older Macs to add accelerators, graphics cards and other add-ons. It's now been superceded by PCI.

PCI: Peripheral Component Interconnect is the expansion bus system used in newer PowerMacs and clones. PCI can typically transfer data three or four times faster than NuBus.

RAM: Random Access Memory is your Mac's main memory. Most Macs come with 16Mb or 32Mb and can be further expanded.

VRAM: Video RAM is used to map images onto a monitor screen. The more you have fitted, the larger a monitor and more colours you can have. 1Mb of video RAM, for example, will enable your Mac to display over 32,000 colours at a heightened resolution of 832 by 624 pixels.



Apus 3000/200
Umax **£1,204**

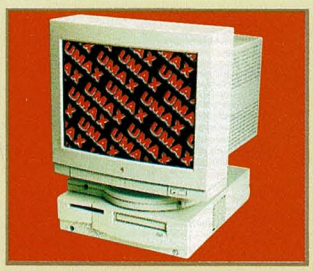
CPU	603e	**Speed**	200MHz
RAM	16Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	Extra
HD	2.1Gb	**CD**	8x
Level 2	256K	**PCI**	3

One step up from the Apus 2000, the 3000 boasts a higher clock speed and an addtional PCI slot. As usual, it's bundled with the *FreeHand Graphics Studio* and more. It also comes with the UK version of System 7.5.5.

StarMax 3200
Motorola **from £1,291**

CPU	603e	**Speed**	200MHz
RAM	16Mb	**Max**	160Mb
VRAM	1Mb	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	256K	**PCI**	3

Only the clock speed is different in the second StarMax. The lack of a daughterboard will prove a drawback for some, but Motorola should follow its rivals to offer one in its next range. Choose from a 16Mb desktop or a 32Mb mini-tower.



Apus 2000/160
Umax — **from £875**

CPU	603e	**Speed**	160MHz
RAM	16Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	None	**PCI**	2

The cheapest Mac available comes with Macromedia's *FreeHand Graphics Studio,* which includes *FreeHand, Fontographer, xRes* and *Extreme 3D,* as well as *ClarisWorks* and utility software. There's also a model with an Ethernet PCI card.

Performa 6320
Apple Computer — **from £901**

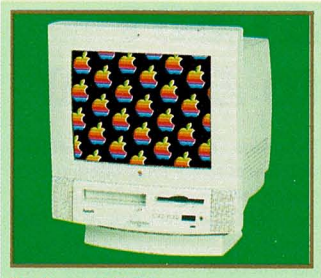
CPU	603e	**Speed**	120MHz
RAM	12Mb	**Max**	64Mb
VRAM	1Mb	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	256K	**PDS**	1

An older Performa for the home, the 6320 is available with or without a 15-inch monitor. Its software bundle remains attractive with *Apple Internet Connection Kit, ClarisWorks, Grolier Encyclopedia, The Way Things Work* and lots more.

Power 100
Power Computing — **£939**

CPU	601	**Speed**	100MHz
RAM	16Mb	**Max**	256Mb
VRAM	1Mb	**Monitor**	Extra
HD	540Mb	**CD**	4x
Level 2	None	**NuBus**	3

The only NuBus-based Mac still on sale, the Power 100 is starting to show its age. If you have already invested in NuBus technology, though, this Mac will enable you to upgrade and still use your NuBus-based cards.



Performa 5260
Apple Computer — **from £965**

CPU	603e	**Speed**	100MHz
RAM	12Mb	**Max**	64Mb
VRAM	1Mb	**Monitor**	14-inch
HD	800Mb	**CD**	4x
Level 2	None	**PDS**	1

Apple's starter Mac is an all-in one machine designed for education use, and it's the cheapest Mac/monitor combination on offer. It comes with a range of software including *Apple Internet Connection Kit, ClarisWorks,* and *Myst.*

StarMax 3180
Motorola — **from £1,021**

CPU	603e	**Speed**	180MHz
RAM	16Mb	**Max**	160Mb
VRAM	1Mb	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	256K	**PCI**	3

Designed as a business box, none of the StarMax range is particularly upgradable, but each has a five-year warranty backed by Motorola's industry reputation. A mini-tower version (pictured) comes with 32Mb of RAM and 5 PCI slots.

PowerMac 4400/200
Apple Computer — **from £1,115**

CPU	603e	**Speed**	200MHz
RAM	16Mb	**Max**	96Mb
VRAM	1Mb	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	None	**PCI**	2

This newer version of the 4400/160 has one less PCI slot, but does offer a comm slot that will take an Ethernet card (used for connecting to high-speed computer networks) or a 33.6Kbps modem – or even a card with both.

PowerBase 180
Power Computing — **£1,174**

CPU	603e	**Speed**	180MHz
RAM	16Mb	**Max**	160Mb
VRAM	Accel	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	256K	**PCI**	3

Power is the only company other than Apple offering a Mac geared for home users, with a variety of software. Unlike Performas, the CPU in the PowerBase machine is upgradable, and there's also a PowerBase 3D accelerator system.

PowerMac 4400/160
Apple Computer — **from £969**

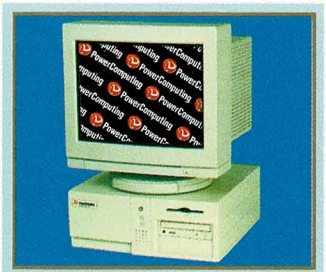
CPU	603e	**Speed**	160MHz
RAM	16Mb	**Max**	96Mb
VRAM	1Mb	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	None	**PCI**	3

A basic Mac tailored for everyday office work, the 4400 still has a good turn of speed. You can also buy it as a pack with Apple's own 15-inch monitor – but compare these specifications with the cheaper Apus 2000 from Umax.

PowerBase 200
Power Computing — **£1,291**

CPU	603e	**Speed**	200MHz
RAM	16Mb	**Max**	160Mb
VRAM	Accel	**Monitor**	Extra
HD	1.2Gb	**CD**	,8x
Level 2	256K	**PCI**	3

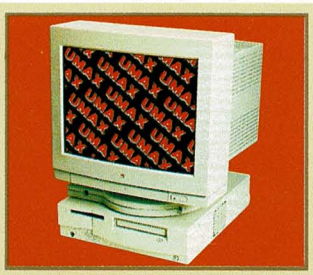
The second in Power Computing's home series, the PowerBase 200 has a faster clock speed and gives you the choice between desktop or mini-tower cases for the same price. There's also the standard PowerBase 3D accelerator system.



PowerCenter 132
Power Computing — **£1,350**

CPU	604	**Speed**	132MHz
RAM	16Mb	**Max**	256Mb
VRAM	1Mb	**Monitor**	Extra
HD	1Gb	**CD**	8x
Level 2	512K	**PCI**	3

The PowerCenter is based on a 604 chip rather than a 604e, hence its presence in this price bracket. It comes with *ClarisWorks, CD-ROM ToolKit, Hard Disk ToolKit, Now Contact & Up-to-Date, Quicken SE* and *Grolier Encyclopedia.*



Apus Desktop Pro 2160
Umax — **£1,374**

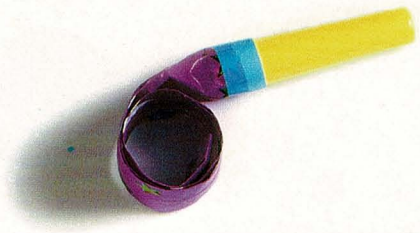
CPU	603e	**Speed**	160MHz
RAM	32Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	14-inch
HD	1.2Gb	**CD**	8x
Level 2	None	**PCI**	2

The Desktop Pro is based on the Apus 2000/160, but comes with 32Mb of RAM, a ViewSonic 14-inch monitor, and a 33.6Kbps modem. Software includes *FaxSTF, TechTool Pro, NetMatters Internet Ready CD* and *Freehand Graphics Studio.*

Family Mac 5400/160
Apple Computer — **£1,498**

CPU	603e	**Speed**	160MHz
RAM	16Mb	**Max**	136Mb
VRAM	1Mb	**Monitor**	15-inch
HD	1.6Gb	**CD**	8x
Level 2	None	**PCI**	1

Apple is launching new home PowerMacs during April (look out for more details next issue), so you could pick up a bargain as older models such as the Family Mac are discounted. It has simply oodles of software, plus a modem. ➤



£1,501 to £2,000

Things are starting to get crowded, with five different firms offering 12 models between them. This sector represents the mid-range of the Mac market. The decisions you have to make become correspondingly more difficult, too: you can pick up a 200MHz 603e-based Mac for home DTP, graphics and some memorable games-playing, or a business machine with up to 64Mb of RAM and a 604e processor. The former is probably as fast as you'll need to get if you want a Mac for home use; the latter starts to take you into the realms of professional-level graphics.

If you are buying for home use, bundled software will be more of a consideration for you. Most of the Macs in this price range offer productivity and utility software – more often than not *ClarisWorks*. Apple and Umax, though, also bundle more specialised graphics and multimedia software with some machines.

PowerBase 240
Power Computing **£1,526**

CPU	603e	**Speed**	240MHz
RAM	16Mb	**Max**	160Mb
VRAM	Accel	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	256K	**PCI**	3

The top PowerBase uses the fastest PowerPC 603e processor currently available, running at 240MHz – and there's a 3D accelerator to boost your graphics. It's bundled with *ClarisWorks, Now Contact & Up-to-Date* and more.

PowerCenter 150
Power Computing **from £1,526**

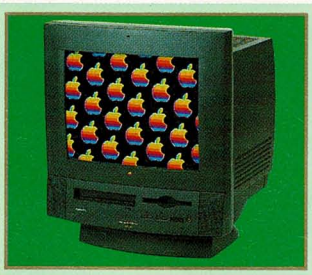
CPU	604	**Speed**	150MHz
RAM	16Mb	**Max**	256Mb
VRAM	1Mb	**Monitor**	Extra
HD	2Gb	**CD**	8x
Level 2	512K	**PCI**	3

Available either as a desktop or mini-tower design, the PowerCenter is another of Power's older machines. It still offers decent options for adding RAM, and you can also easily replace its 604 processor with a spanking new 604e later.

StarMax 4160
Motorola **from £1,644**

CPU	604e	**Speed**	160MHz
RAM	16Mb	**Max**	160Mb
VRAM	2Mb	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	512K	**PCI**	3

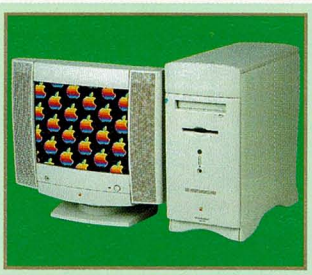
For just £120 more, though, Motorola offers the cheapest 604e-based Mac on the market. Like its stablemates it's not upgradable, but it does come with a five-year warranty. It's available as a desktop or as a mini-tower with 32Mb of RAM.



Family Mac 5400/180
Apple Computer **£1,761**

CPU	603e	**Speed**	180MHz
RAM	16Mb	**Max**	136Mb
VRAM	1Mb	**Monitor**	15-inch
HD	1.6Gb	**CD**	8x
Level 2	None	**PCI**	1

The famous black Mac. We'll soon see if Apple offers an encore with its new April range, but the 5400/180 marks a genuine attempt to make Macs for the living room, sitting snugly alonside the TV and hi-fi. There's an attractive software pack too.



Home Office 6400/200
Apple Computer **£1,879**

CPU	603e	**Speed**	200MHz
RAM	16Mb	**Max**	136Mb
VRAM	1Mb	**Monitor**	Extra
HD	1.6Gb	**CD**	8x
Level 2	None	**PCI**	2

While the two Family Macs literally contrast (one's white, one's black), this Home Office differs from its sibling only by being a little faster. It's also exactly the same machine as the one in the Creative Studio, so pick the software you like.

StarMax 3240 MT Plus
Motorola **£1,879**

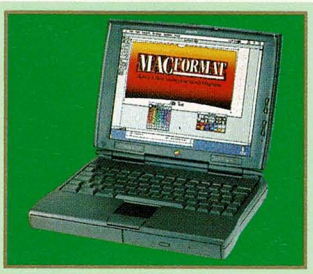
CPU	603e	**Speed**	240MHz
RAM	32Mb	**Max**	160Mb
VRAM	4Mb	**Monitor**	Extra
HD	2.5Gb	**CD**	8x
Level 2	512K	**PCI**	5

Striking a dissonant note in the otherwise consistent StarMax range, the MT Plus comes only as a mini-tower, packed to the gills with a fast 603e chip, 32Mb of RAM and 4Mb of video RAM for handling the very largest monitors with ease.

£2,001 to £2,500

You'll still find some 603e chips in the 2K selection, although they'll either come with too much software to handle or in a case you can carry around with you. What £2,000-plus will buy most people, though, is a fast Mac with as many upgrade options as most people could want. There's a great choice of machines with 200MHz 604e chips.

Macs in this range will do nicely if you're into everyday DTP, graphics and illustration, although you'll also find the first stab at a more ambitious multimedia authoring kit.



PowerBook 1400cs/117
Apple Computer **from £2,010**

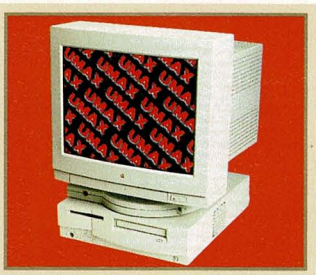
CPU	603e	**Speed**	117MHz
RAM	12Mb	**Max**	64Mb
VRAM	1Mb	**Monitor**	11.3-inch
HD	750Mb	**CD**	Optional
Level 2	None	**PC Card**	2 x Type II

The cheapest PowerBook is aimed at travelling reps and people who lust after a portable. Three machines give you a complex set of options, including CD-ROM drives and a Colour StyleWriter for printing anytime, anywhere.

PowerMac 7300/166
Apple Computer **£2,056**

CPU	604e	**Speed**	166MHz
RAM	16Mb	**Max**	512Mb
VRAM	2Mb	**Monitor**	Extra
HD	2Gb	**CD**	12x
Level 2	256K	**PCI**	3

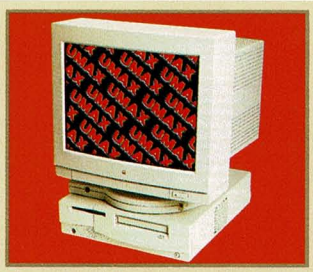
Since joined by the faster 7300/200, the 7300/166 puts an end to the myth of Apple-Microsoft animosity: there's a copy of *Microsoft Office* with every machine. The heart of every corporate systems manager starts fluttering at the thought.



Apus Pro 3240
Umax **£2,173**

CPU	603e	**Speed**	240MHz
RAM	32Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	14-inch
HD	2.1Gb	**CD**	8x
Level 2	256K	**PCI**	3

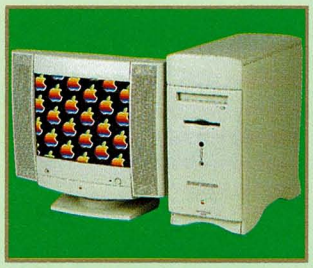
Another business-oriented model, the Pro 3240 is based on the 3000/240, but comes with 32Mb of RAM and a 14-inch ViewSonic monitor. You also get a modem with fax and voicemail software, plus the Umax pack.



Apus 3000/240
Umax £1,669

CPU	603e	**Speed**	240MHz
RAM	16Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	Extra
HD	2.1Gb	**CD**	8x
Level 2	256K	**PCI**	3

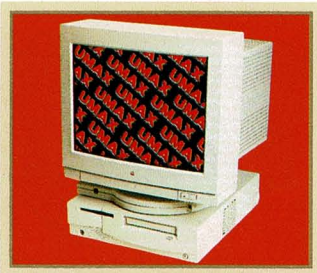
Designed for demanding businessmen, the 3000/240 is based on the fastest-available 603e processor and comes with Ethernet networking as standard. You also get the regular Umax software pack for your money.



Home Office 6400/180
Apple Computer £1,710

CPU	603e	**Speed**	180MHz
RAM	16Mb	**Max**	136Mb
VRAM	1Mb	**Monitor**	Extra
HD	1.6Gb	**CD**	8x
Level 2	None	**PCI**	2

The next of Apple's innovative solutions is for people who work from home, offering *Claris Impact* and *Claris Organiser* and two PCI slots, along with a 28.8Kbps modem and an entertainment pack which includes three Disney programs.



Apus Pro 3200
Umax £1,712

CPU	603e	**Speed**	200MHz
RAM	32Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	14-inch
HD	2.1Gb	**CD**	8x
Level 2	256K	**PCI**	3

Based on the Apus 3000/200, the businesslike Pro 3200 comes with 32Mb of RAM, a ViewSonic 14-inch monitor, and a 33.6Kbps modem. Titles like *FaxSTF, Front Office VoiceMail* and *TechTool Pro* supplement the regular Umax pack.

New York
Computer Warehouse £1,761

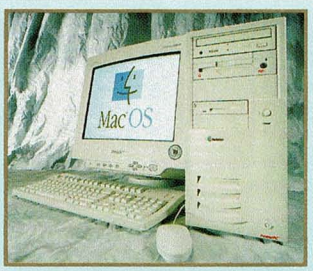
CPU	604e	**Speed**	200MHz
RAM	16Mb	**Max**	160Mb
VRAM	2Mb	**Monitor**	Extra
HD	1.2Gb	**CD**	16x
Level 2	256K	**PCI**	3

The first Mac to come from a British company, the CW New York is keenly priced. Computer Warehouse's first own-brand Mac follows a trend in the US for mail-order companies to offer their own machines alongside Apple and Power's.

PowerCenter 180
Power Computing £1,879

CPU	604	**Speed**	180MHz
RAM	16Mb	**Max**	512Mb
VRAM	1Mb	**Monitor**	Extra
HD	2Gb	**CD**	8x
Level 2	512K	**PCI**	3

Again using the older 604 chip, the fastest PowerCenter enables you to pack in 512Mb of RAM – and don't try telling us no-one's ever going to need that much. It's aimed at the small business user with big business aspirations.



Manhattan
Computer Warehouse £1,996

CPU	604e	**Speed**	200MHz
RAM	64Mb	**Max**	160Mb
VRAM	2Mb	**Monitor**	Extra
HD	4Gb	**CD**	16x
Level 2	256K	**PCI**	5

With the exception of its stablemate the Hollywood, the Manhattan offers more installed RAM than any other Mac you can buy. Aimed at spendthrift graphics pro's, it's also the only Mac to be named after a cocktail.

StarMax 4200
Motorola from £2,231

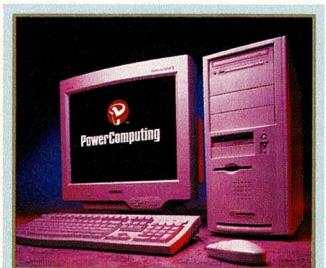
CPU	604e	**Speed**	200MHz
RAM	16Mb	**Max**	160Mb
VRAM	2Mb	**Monitor**	Extra
HD	1.2Gb	**CD**	8x
Level 2	512K	**PCI**	3

The fastest Motorola machine caps a range that's going down a treat with business users craving reliability and customer service. As usual, it's available as a desktop with 16Mb of RAM or as a mini-tower with 32Mb and extra PCI slots.

Hollywood
Computer Warehouse £2,349

CPU	604e	**Speed**	200MHz
RAM	64Mb	**Max**	160Mb
VRAM	2Mb	**Monitor**	Extra
HD	4Gb	**CD**	16x
Level 2	256K	**PCI**	5

CW's fastest Mac is groomed for seasoned multimedia designers. You get 64Mb of RAM, along with a copy of the highly-acclaimed *mTropolis* authoring software (used by Activision among others) and Miro's DC-20 video card.



PowerTower Pro 200
Power Computing from £2,462

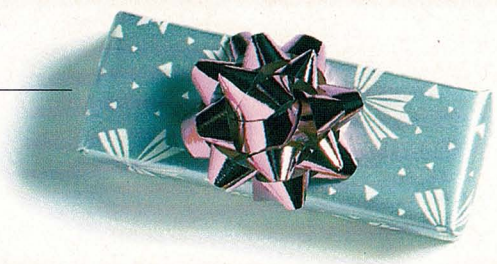
CPU	604e	**Speed**	200MHz
RAM	16Mb	**Max**	1Gb
VRAM	Card	**Monitor**	Extra
HD	2Gb	**CD**	8x
Level 2	1Mb	**PCI**	6

A giant leap from the PowerCenter, the giant PowerTower starts where other ranges are forced to end – at the 200MHz level. Its entertainment-based software pack seems out of kilter with such a powerful beast.

PowerMac 7300/200
Apple Computer from £2,467

CPU	604e	**Speed**	200MHz
RAM	32Mb	**Max**	512Mb
VRAM	2Mb	**Monitor**	Extra
HD	2Gb	**CD**	12x
Level 2	256K	**PCI**	3

Each of Apple's newest set of PowerMacs uses the same 200MHz 604e chip. The difference is in the details: with its copy of *Microsoft Office,* the PowerMac 7300 should appeal to corporate-minded business users. ➤



£2,501 to £3,000

Sorting the serious from the dabblers, here's a quintet of Macs doing what all their predecessors did, only more so. The software and add-ons become ever more macho, with half a dozen PCI slots vying with complete video editing suites for your cash.

Not so long ago, the thought of an out-of-the-box kit enabling you to edit and compile video tape would have been preposterous. Now you can take your pick of two.

There's also a trio of Macs for people who do more *Photoshop* work than they realise is good for them.

Pulsar 200
Umax — £2,556

CPU	604e	**Speed**	200MHz
RAM	32Mb	**Max**	1Gb
VRAM	Card	**Monitor**	Extra
HD	2Gb	**CD**	8x
Level 2	512K	**PCI**	6

Umax's cheapest 604e-based Mac comes with a Matrox graphics card, enabling you to to view bigger images with more colours ay higher speeds – everything a graphic designer could want. Macromedia's *FreeHand Studio* is included.

PowerTower Pro 225
Power Computing — from £2,579

CPU	604e	**Speed**	225MHz
RAM	16Mb	**Max**	1Gb
VRAM	Card	**Monitor**	Extra
HD	2Gb	**CD**	8x
Level 2	1Mb	**PCI**	6

Along with the Pulsar 225, the Pro 225 is the fastest single-processor machine on the market. One of the six PCI slots also includes a graphics card – the make depends on whether you buy the 16Mb Lite or the 32Mb full model.

Creative Studio 6400/200
Apple Computer — £2,584

CPU	603e	**Speed**	200MHz
RAM	24Mb	**Max**	136Mb
VRAM	1Mb	**Monitor**	Extra
HD	2.4Gb	**CD**	8x
Level 2	256K	**PCI**	2

Lacking the awesome speed of some in this price range, the Studio is still fast enough to handle a video card from Avid, plus innovative easy-to-use video editing software. A selection of graphics software adds body to a gorgeous package.

£3,001 to £3,500

Unless you have a lot of money burning holes in your pocket or work in the printing industry, you should probably restrict yourself just to looking at these powerhouses. The exception is Umax's Multimedia Studio: starting where the cheaper Movie Maker left off, it takes the concept of the out-of-the-box pack to astonishing extremes.

Pulsar 225
Umax — £3,054

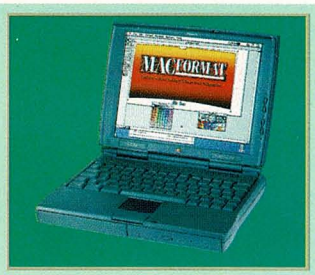
CPU	604e	**Speed**	225MHz
RAM	32Mb	**Max**	1Gb
VRAM	Card	**Monitor**	Extra
HD	2Gb	**CD**	8x
Level 2	512K	**PCI**	6

The "other" fastest single-processor Mac in the world comes with a Matrox Millenium 3D graphics accelerator card, *FreeHand Graphics Studio* and *ClarisWorks* (although getting this 225MHz beast for *ClarisWorks* might be overkill).

PowerMac 9600/200
Apple Computer — £3,055

CPU	604e	**Speed**	200MHz
RAM	32Mb	**Max**	768Mb
VRAM	Card	**Monitor**	Extra
HD	4Gb	**CD**	12x
Level 2	512K	**PCI**	6

Apple's PowerMac for professional graphics and video comes with an IMS Twin Turbo graphics card. A 233MHz version is due out later in the spring, making everything you've just read about out-of-date. Life isn't fair sometimes.



PowerBook 1400c/133
Apple Computer — £3,180

CPU	603e	**Speed**	133MHz
RAM	16Mb	**Max**	64Mb
VRAM	1Mb	**Monitor**	11.3-inch
HD	1Gb	**CD**	6x
Level 2	128K	**PC Card**	2 x Type II

Tweaking the 1400 formula, the 133 adds a faster chip including a Level 2 cache, plus a bigger hard drive. The most crucial change, though, is the active matrix Liquid Crystal Display screen – capable of displaying thousands of colours.

Over £3,500

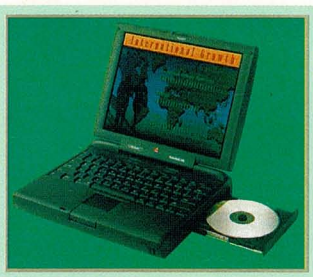
Status symbols! If you're looking at spending this kind of money, you need the best there is – or maybe you just want the best there is.

Other than some luxurious PowerBooks, this price bracket is reserved for the very fastest multiple-processor Macs. MP machines offer incredible amounts of raw number-crunching power for the most rigorous in graphics, 3D and video production. These markets are growing as prices drop lower and lower. The drawback is that only some programs can actually draw on the extra processors for that extra turn of speed, but by now most of the biggest names in graphics have adopted the standard.

PowerBook 3400c/180
Apple Computer — from £3,641

CPU	603e	**Speed**	180MHz
RAM	16Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	12.1-inch
HD	1.3Gb	**CD**	Optional
Level 2	256K	**PC Card**	2 x Type II

The world's most gorgeous portable range starts here, with an expansive 12.1-inch screen and the option of a 12-speed CD-ROM drive. Crucial business presentations will run for hours without the video missing a beat.



PowerBook 3400c/200
Apple Computer — from £3,846

CPU	603e	**Speed**	200MHz
RAM	16Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	12.1-inch
HD	2Gb	**CD**	12x
Level 2	256K	**PC Card**	2 x Type II

The base model of the two 200MHz options simply adds a burst of extra speed to the 180MHz offering; but there's also a 32Mb version with a copy of *SoftWindows*, enabling you to take work home even if you use a PC at work.

PowerMac 9600/200 MP
Apple Computer — £3,878

CPU	2 x 604e	**Speed**	200MHz
RAM	32Mb	**Max**	768Mb
VRAM	Card	**Monitor**	Extra
HD	4Gb	**CD**	12x
Level 2	512K	**PCI**	6

Apple's multiple-processor Mac sports two 200MHz 604e processors for blistering performance in MP-aware applications such as *Photoshop* and *Strata StudioPro*. Like its single-chip sibling, it also packs an IMS graphics card.

PowerMac 8600/200
Apple Computer **£2,643**

CPU	604e	**Speed**	200MHz
RAM	32Mb	**Max**	512Mb
VRAM	2Mb	**Monitor**	Extra
HD	2Gb	**CD**	12x
Level 2	256K	**PCI**	3

Multimedia and graphics pro's go for the PowerMac in the sexy new K12 tower case, complete with a built-in Zip drive to help you store all those video and animation sequences you're making. Look out for a Web creation kit soon as well.

Apus Movie Maker
Umax **£2,744**

CPU	603e	**Speed**	200MHz
RAM	32Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	15-inch
HD	2.1Gb	**CD**	8x
Level 2	256K	**PCI**	3

Umax's bundles just get bigger: this Apus package offers a Miro video card, software from Adobe and Macromedia, plus a Umax colour scanner and a 15-inch ViewSonic monitor for good measure. What, no printer?

Apus Multimedia Studio
Umax **£3,289**

CPU	603e	**Speed**	200MHz
RAM	32Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	15-inch
HD	2.1Gb	**CD**	8x
Level 2	256K	**PCI**	3

Want to create multimedia? How about an Apus with *Director* (the media creator's favourite), graphics software, audio software, a Umax S6E scanner and, to cap it all, a built-in CD-recordable drive with Astarte's *Toast Pro 3.0?*

Pulsar 200 DP
Umax **£3,406**

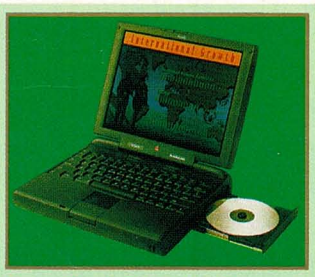
CPU	2 x 604e	**Speed**	200MHz
RAM	32Mb	**Max**	1Gb
VRAM	Card	**Monitor**	Extra
HD	2Gb	**CD**	8x
Level 2	512K	**PCI**	6

Beating all its rivals, the Pulsar 200 DP is the cheapest Mac to offer more than one processor running in parallel, giving you the ultimate in power for demanding graphics tasks. DP stands for dual-processor, of course.

PowerTower Pro 225 MP
Power Computing **£4,106**

CPU	2 x 604e	**Speed**	225MHz
RAM	32Mb	**Max**	1Gb
VRAM	Card	**Monitor**	Extra
HD	2Gb	**CD**	8x
Level 2	1Mb	**PCI**	6

Going 50MHz better, Power Computing's only multiple-processor machine gets an extra 25MHz out of each of the two 604e processors. It too comes with an IMS graphics card, plus software – none of it written for MP though.



PowerBook 3400c/240
Apple Computer **£5,075**

CPU	603e	**Speed**	240MHz
RAM	16Mb	**Max**	144Mb
VRAM	1Mb	**Monitor**	12.1-inch
HD	3Gb	**CD**	12x
Level 2	256K	**PC Card**	2 x Type II

The world's fastest (and most desirable) portable computer simply adds a faster chip and bigger hard drive to the rejuvenated PowerBook formula. You can win one of these in our special 50th-issue competition – see page 146.

Genesis MP 720+
DayStar **£8,224**

CPU	4 x 604e	**Speed**	180MHz
RAM	0Mb	**Max**	1.5Gb
VRAM	0Mb	**Monitor**	Extra
HD	0Mb	**CD**	8x
Level 2	512K	**PCI**	6

The only Macs to offer four PowerPC 604e processors in a single machine, DayStar's duo is also notable for offering no RAM, no hard disk and no VRAM or graphics card. Anyone who demands this level of speed also needs customisation.

Genesis MP 800+
DayStar **£9,399**

CPU	4 x 604e	**Speed**	200MHz
RAM	0Mb	**Max**	1.5Gb
VRAM	0Mb	**Monitor**	Extra
HD	0Mb	**CD**	8x
Level 2	512K	**PCI**	6

Undoubtedly the world's most powerful Mac, as long as you're using MP-aware software. Four PowerPC processors running at 200MHz offer the current ultimate machine for graphics and video-editing professionals. ➤

Making Macs

One in ten Macs sold now comes from a company other than Apple, denting the Mac inventor's sales for the first time. In addition, more firms are announcing plans for their own Mac-compatibles, increasing your choice still further. The UK looks set to benefit from the rising tide of Mac licensees with one of the widest choices of Mac systems outside the United States.

Combined sales for Mac-compatible computers during 1996 exceeded 500,000, according to separate figures from Californian researcher Creative Strategies and US trade paper *MacWeek*. This means more than five million Macs were sold last year, despite Apple's 4.5 million representing a slight dip in its own sales.

Encouraged by this early success, the clone firms want more. Look out for newcomers to join the 13 already offering machines, and for the PowerPC Platform to attract some surprising names to the Mac.

Making Macs today

Akia	High-tech machines in Japan
Apple	All types of Macs everywhere
APS Technologies	Mail-order firm offering own brand in US
CW	UK mail-order firm gets in on the act
DayStar	Multiple-processor specialist
Gravis	German retail chain offers in-store range
Motorola	Electronics giant becoming increasingly competitive
Pioneer	Multimedia Macs in Japan
Power Computing	Original licensee still growing fast
PowerTools	Mail-order firm with own brand in US
Umax	Broad range of Macs, soon to offer PCs as well
Vertegri Research	Canadian maverick with portable and desktop range
Vision Power	Far East firm moving into US and Europe

Waiting in the wings

Acorn	UK education mainstay has teamed up with Apple
Datatech	Look out for PPCP machines
Everex	PC-compatible maker eyeing up PPCP market
IBM	Working with Apple on portable for Japan and US
Nishinden	Far East manufacturer signing up deals for PPCP
Pios	German firm producing PPCP/Amiga hybrid
RedBox	Cambridge-based graphics specialist
Soyo	Expect to see PPCP computers
Tatung	Has already shown PPCP running Mac OS
PoweRisc	US mail-order firm
Sonnet	US mail-order firm

Hotly rumoured

Acer	Already signed up to manufacture PPCP boards
Compaq	Leading PC maker is often mentioned, but no evidence
LG Electronics	Has twice announced Mac range, but no sign of it yet

The Mac parade

MACFORMAT's guide to every Mac now on sale in the UK.

Apple Computer

Apple: 0800 127753	CPU	Speed	CPU upgrade	RAM	Max RAM	Video RAM	Monitor	HD	CD-ROM	Cache	Expansion	Comms	Mac OS	Price
All PowerBook 1400s come with the following software: *Apple Internet Connection Kit, Apple Remote Access, Claris Organiser, ClarisWorks*														
PowerBook 1400cs/117	PPC 603e	117MHz	No	12Mb	64Mb	1Mb	11.3-inch	750Mb	None	None	2 Type II PC card	None fitted	7.5.3	£2,010
PowerBook 1400cs/117	PPC 603e	117MHz	No	16Mb	64Mb	1Mb	11.3-inch	750Mb	6x	None	2 Type II PC card	None fitted	7.5.3	£2,357
PowerBook 1400cs/117	PPC 603e	117MHz	No	16Mb	64Mb	1Mb	11.3-inch	750Mb	6x	None	2 Type II PC card	None fitted	7.5.3	£2,565
Extras: Colour StyleWriter 2200														
PowerBook 1400c/133	PPC 603e	133MHz	No	16Mb	64Mb	1Mb	11.3-inch	1Gb	6x	128K	2 Type II PC card	None fitted	7.5.3	£3,180
All PowerBook 3400s come with the following software: *Apple Internet Connection Kit, Apple Location Manager, Apple Remote Access, Claris Organiser, WebWhacker*														
PowerBook 3400c/180	PPC 603e	180MHz	No	16Mb	144Mb	1Mb	12.1-inch	1.3Gb	None	256K	2 Type II PC card	None fitted	7.6	£3,541
PowerBook 3400c/180	PPC 603e	180MHz	No	16Mb	144Mb	1Mb	12.1-inch	1.3Gb	12x	256K	2 Type II PC card	Ethernet	7.6	£3,846
PowerBook 3400c/200	PPC 603e	200MHz	No	16Mb	144Mb	1Mb	12.1-inch	2Gb	12x	256K	2 Type II PC card	Ethernet	7.6	£4,154
PowerBook 3400c/200	PPC 603e	200MHz	No	32Mb	144Mb	1Mb	12.1-inch	2Gb	12x	256K	2 Type II PC card	Ethernet	7.6	£4,374
Software: *SoftWindows*														
PowerBook 3400c/240	PPC 603e	240MHz	No	16Mb	144Mb	1Mb	12.1-inch	3Gb	12x	256K	2 Type II PC card	Ethernet	7.6	£5,075
PowerMac 4400/160	PPC 603e	200MHz	No	16Mb	96Mb	1Mb	Extra	1.2Gb	8x	None	3 PCI	None fitted	7.5.3	£969
PowerMac 4400/160	PPC 603e	200MHz	No	16Mb	96Mb	1Mb	15-inch	1.2Gb	8x	None	3 PCI	None fitted	7.5.3	£1,247
PowerMac 4400/200	PPC 603e	200MHz	No	16Mb	96Mb	1Mb	Extra	1.2Gb	8x	None	2 PCI	None fitted	7.5.3	£1,115
PowerMac 4400/200	PPC 603e	200MHz	No	16Mb	96Mb	1Mb	15-inch	1.2Gb	8x	None	2 PCI	None fitted	7.5.3	£1,385
PowerMac 4400/200	PPC 603e	200MHz	No	16Mb	96Mb	2Mb	Extra	2Gb	8x	256K	2 PCI	Ethernet	7.5.3	£1,327
PowerMac 4400/200	PPC 603e	200MHz	No	16Mb	96Mb	2Mb	15-inch	2Gb	8x	256K	2 PCI	Ethernet	7.5.3	£1,524
Performa 5260/100	PPC 603e	100MHz	No	12Mb	64Mb	1Mb	14-inch	800Mb	4x	None	1 PDS	None fitted	7.5.3	£965
Performa 5260/120	PPC 603e	120MHz	No	12Mb	64Mb	1Mb	14-inch	800Mb	4x	None	1 PDS	None fitted	7.5.3	£1,073
Both Performa 6320s come with the following software: *Aladdin Activity Centre, Apple Internet Connection Kit, ClarisWorks, Daedalus Encounter, Grolier Multimedia Encyclopedia, InBred with Rednex, Lion King Storybook, Making Music, Mega Rock Rap & Roll, Millie's Math House, Myst, Spin Doctor, SuperMaze Wars, The Way Things Work, Thinkin' Things, Toy Story Preview*														
Performa 6320	PPC 603e	120MHz	No	12Mb	64Mb	1Mb	Extra	1.2Gb	8x	256K	1 PDS	None fitted	7.5.3	£901
Performa 6320	PPC 603e	120MHz	No	12Mb	64Mb	1Mb	15-inch	1.2Gb	8x	256K	1 PDS	None fitted	7.5.3	£1,250
All themed Performas (Family Mac, Home Office, Creative Studio) come with the following software: *Acrobat Reader, Aladdin Activity Centre, Apple Internet Connection Kit, Best of European Soccer, ClarisWorks, Descent, Full Throttle, Grolier Multimedia Encyclopedia, Lion King Storybook, Power Pete, Sammy's Science House, Thinkin' Things, Toy Story Preview, Ultimate Human Body*														
Family Mac 5400/160	PPC 603e	160MHz	No	16Mb	136Mb	1Mb	15-inch	1.6Gb	8x	None	1 PCI	Modem	7.5.3	£1,498
Family Mac 5400/180	PPC 603e	180MHz	No	16Mb	136Mb	1Mb	15-inch	1.6Gb	8x	None	1 PCI	Modem	7.5.3	£1,761
Home Office 6400/180	PPC 603e	180MHz	No	16Mb	136Mb	1Mb	15-inch	1.6Gb	8x	None	2 PCI	Modem	7.5.3	£1,710
Software: *ClarisImpact, Claris Organiser*														
Home Office 6400/200	PPC 603e	200MHz	No	16Mb	136Mb	1Mb	15-inch	1.6Gb	8x	256K	2 PCI	Modem	7.5.3	£1,879
Software: *ClarisImpact, Claris Organiser*														
Creative Studio 6400/200	PPC 603e	200MHz	No	24Mb	136Mb	1Mb	15-inch	2.4Gb	8x	256K	2 PCI	Modem	7.5.3	£2,584
Extras: TV tuner card, Avid video card • **Software:** *Avid Cinema, Cubasis, Dabbler, Kai's Power Goo, PageMill, PhotoDeluxe*														
Both PowerMac 7300s come with the following software: *Apple Internet Connection Kit, Microsoft Office*														
PowerMac 7300/166	PPC 604e	166MHz	Yes	16Mb	512Mb	2Mb	Extra	2Gb	12x	256K	3 PCI	Ethernet	7.5.5	£2,056
PowerMac 7300/200	PPC 604e	200MHz	Yes	32Mb	512Mb	2Mb	Extra	2Gb	12x	256K	3 PCI	Ethernet	7.5.5	£2,467
PowerMac 8600/200	PPC 604e	200MHz	Yes	32Mb	512Mb	2Mb	Extra	2Gb	12x	256K	3 PCI	Ethernet	7.5.5	£2,643
Extras: Zip Drive • **Software:** *Apple Internet Connection Kit*														
All PowerMac 9600s come with an IMS graphics card and *Apple Internet Connection Kit*														
PowerMac 9600/200	PPC 604e	200MHz	Yes	32Mb	768Mb	4Mb	Extra	4Gb	12x	512K	6 PCI	Ethernet	7.5.5	£3,055
PowerMac 9600/233	PPC 604e	233MHz	Yes	32Mb	768Mb	4Mb	Extra	4Gb	12x	512K	6 PCI	Ethernet	7.5.5	£3,524
PowerMac 9600/200 MP	2 x PPC 604e	200MHz	Yes	32Mb	768Mb	4Mb	Extra	4Gb	12x	512K	6 PCI	Ethernet	7.5.5	£3,878

Computer Warehouse

MCM: 0171 724 4104	CPU	Speed	CPU upgrade	RAM	Max RAM	Video RAM	Monitor	HD	CD-ROM	Cache	Expansion	Comms	Mac OS	Price
New York	PPC 604e	200MHz	No	16Mb	160Mb	2Mb	Extra	1.2Gb	16x	256K	3 PCI	None fitted	7.5.5	£1,761
Manhattan	PPC 604e	200MHz	No	64Mb	160Mb	2Mb	Extra	3.8Gb	16x	256K	5 PCI	None fitted	7.5.5	£1,996
Hollywood	PPC 604e	200MHz	No	64Mb	160Mb	2Mb	Extra	3.8Gb	16x	256K	5 PCI	None fitted	7.5.5	£2,349
Extras: Miro DC-20 video card, Zip Drive • **Software:** *mTropolis*														

DayStar

CU: 0181 357 5758	CPU	Speed	CPU upgrade	RAM	Max RAM	Video RAM	Monitor	HD	CD-ROM	Cache	Expansion	Comms	Mac OS	Price
Both DayStar systems come with multiple-processor software extensions														
Genesis MP720+	4 x PPC 604e	180MHz	Yes	0Mb	1.5Gb	None	Extra	0Mb	8x	512K	6 PCI	Ethernet	7.5.3	£8,224
Genesis MP800+	4 x PPC 604e	200MHz	Yes	0Mb	1.5Gb	None	Extra	0Mb	8x	512K	6 PCI	Ethernet	7.5.3	£9,399

What to look out for

CPU: what type of processor is fitted?
Speed: what's the clock speed?
CPU upgrade: is the processor mounted on a daughterboard, so you can upgrade it later?

Motorola

Principal: 01756 704040	CPU	Speed	CPU upgrade	RAM	Max RAM	Video RAM	Monitor	HD	CD-ROM	Cache	Expansion	Comms	Mac OS	Price
StarMax 3180 Desktop	PPC 603e	180MHz	No	16Mb	160Mb	1Mb	Extra	1.2Gb	8x	256K	3 PCI	Modem	7.5.3	£1,021
StarMax 3180 MiniTower	PPC 603e	180MHz	No	32Mb	160Mb	1Mb	Extra	2.5Gb	8x	256K	5 PCI	Modem	7.5.3	£1,174
StarMax 3200 Desktop	PPC 603e	200MHz	No	16Mb	160Mb	1Mb	Extra	1.2Gb	8x	256K	3 PCI	Modem	7.5.3	£1,291
StarMax 3200 MiniTower	PPC 603e	200MHz	No	32Mb	160Mb	1Mb	Extra	2.5Gb	8x	256K	5 PCI	Modem	7.5.3	£1,468
StarMax 3240 MiniTower Plus	PPC 603e	240MHz	No	32Mb	160Mb	4Mb	Extra	2.5Gb	8x	512K	5 PCI	Modem	7.5.3	£1,879
StarMax 4160 Desktop	PPC 604e	160MHz	No	16Mb	160Mb	2Mb	Extra	1.2Gb	8x	512K	3 PCI	Modem	7.5.3	£1,644
StarMax 4160 MiniTower	PPC 604e	160MHz	No	32Mb	160Mb	2Mb	Extra	2.5Gb	8x	512K	5 PCI	Modem	7.5.3	£1,938
StarMax 4200 Desktop	PPC 604e	200MHz	No	16Mb	160Mb	2Mb	Extra	1.2Gb	8x	512K	3 PCI	Modem	7.5.3	£2,231
StarMax 4200 MiniTower	PPC 604e	200MHz	No	32Mb	160Mb	2Mb	Extra	2.5Gb	8x	512K	5 PCI	Modem	7.5.3	£2,349

Power Computing

MCM: 0171 724 4104	CPU	Speed	CPU upgrade	RAM	Max RAM	Video RAM	Monitor	HD	CD-ROM	Cache	Expansion	Comms	Mac OS	Price
Power 100 Mini Tower	PPC 601	100MHz	No	16Mb	256Mb	1Mb	None	540Mb	4x	256K	3 NuBus	None fitted	7.5.3	£939
Software: *CD-ROM Toolkit, ClarisWorks, Grolier Multimedia Encyclopedia, Hard Disk Toolkit, Now Contact, Now Up-to-Date*														
All PowerBase systems come with a built-in 3D graphics acceleration system based on 2Mb DRAM, plus the following software: *CD-ROM Toolkit, ClarisWorks, Grolier Multimedia Encyclopedia, Hard Disk Toolkit, Now Contact, Now Up-to-Date, Quicken SE*														
PowerBase 180 Low Profile	PPC 603e	180MHz	Yes	16Mb	160Mb	Acc	Extra	1.2Gb	8x	256K	3 PCI	None fitted	7.5.3	£1,174
PowerBase 200 Low Profile	PPC 603e	200MHz	Yes	16Mb	160Mb	Acc	Extra	1.2Gb	8x	256K	3 PCI	None fitted	7.5.3	£1,291
PowerBase 200 Mini Tower	PPC 603e	200MHz	Yes	16Mb	160Mb	Acc	Extra	1.2Gb	8x	256K	3 PCI	None fitted	7.5.3	£1,291
PowerBase 240 Low Profile	PPC 603e	240MHz	Yes	16Mb	160Mb	Acc	Extra	1.2Gb	8x	256K	3 PCI	None fitted	7.5.3	£1,526
PowerBase 240 Mini Tower	PPC 603e	240MHz	Yes	16Mb	160Mb	Acc	Extra	1.2Gb	8x	256K	3 PCI	None fitted	7.5.3	£1,526
All PowerCenter systems come with the following software: *CD-ROM Toolkit, ClarisWorks, Grolier Multimedia Encyclopedia, Hard Disk Toolkit, Now Contact, Now Up-to-Date, Quicken SE*														
PowerCenter 132 Low Profile	PPC 604	132MHz	Yes	16Mb	256Mb	1Mb	Extra	1Gb	8x	512K	3 PCI	None fitted	7.5.3	£1,350
PowerCenter 150 Low Profile	PPC 604	150MHz	Yes	16Mb	256Mb	1Mb	Extra	2Gb	8x	512K	3 PCI	None fitted	7.5.3	£1,526
PowerCenter 150 Mini Tower	PPC 604	150MHz	Yes	16Mb	256Mb	1Mb	Extra	2Gb	8x	512K	3 PCI	None fitted	7.5.3	£1,761
PowerCenter 180 Mini Tower	PPC 604	180MHz	Yes	16Mb	512Mb	1Mb	Extra	2Gb	8x	512K	3 PCI	None fitted	7.5.3	£1,879
All PowerTower Pro systems come with the following software: *Animals, CD-ROM Toolkit, ClarisWorks, Grolier Multimedia Encyclopedia, Hard Disk Toolkit, Now Contact, Now Up-to-Date, Now Utilities, Speed Doubler, US Atlas, World Atlas*														
PowerTower Pro 200 Lite	PPC 604e	200MHz	Yes	16Mb	1Gb	2Mb	Extra	2Gb	8x	1Mb	6 PCI	None fitted	7.5.3	£2,462
Extras: ATI graphics card														
PowerTower Pro 200	PPC 604e	200MHz	Yes	32Mb	1Gb	Card	Extra	2Gb	8x	1Mb	6 PCI	None fitted	7.5.3	£2,579
Extras: IMS Twin Turbo graphics card														
PowerTower Pro 225 Lite	PPC 604e	225MHz	Yes	16Mb	1Gb	2Mb	Extra	2Gb	8x	1Mb	6 PCI	None fitted	7.5.3	£2,579
Extras: ATI graphics card														
PowerTower Pro 225	PPC 604e	225MHz	Yes	32Mb	1Gb	Card	Extra	2Gb	8x	1Mb	6 PCI	None fitted	7.5.3	£2,814
Extras: IMS Twin Turbo graphics card														
PowerTower Pro 225 MP	2 x PPC 604e	225MHz	Yes	32Mb	1Gb	Card	Extra	2Gb	8x	1Mb	6 PCI	None fitted	7.5.3	£4,106
Extras: IMS Twin Turbo graphics card														

Umax

IMC: 01344 871344	CPU	Speed	CPU upgrade	RAM	Max RAM	Video RAM	Monitor	HD	CD-ROM	Cache	Expansion	Comms	Mac OS	Price
All Apus systems come with the following software: *CD-ROM Toolkit, ClarisWorks, Extreme 3D, Fontographer, FreeHand, Hard Disk Toolkit, xRes*														
Apus 2000/160	PPC 603e	160MHz	Yes	16Mb	144Mb	1Mb	Extra	1.2Gb	8x	None	2 PCI	None fitted	7.5.5	£875
Apus 2000/160	PPC 603e	160MHz	Yes	16Mb	144Mb	1Mb	Extra	1.2Gb	8x	None	2 PCI	Ethernet	7.5.5	£934
Apus Desktop Pro 2160	PPC 603e	160MHz	Yes	32Mb	144Mb	1Mb	14-inch	1.2Gb	8x	None	2 PCI	Modem	7.5.5	£1,374
Software: *FaxSTF, Front Office VoiceMail, NetMatters Internet Ready CD, TechTool Pro*														
Apus 3000/200	PPC 603e	200MHz	Yes	16Mb	144Mb	1Mb	Extra	2.1Gb	8x	256K	3 PCI	None fitted	7.5.5	£1,204
Apus Pro 3200	PPC 603e	200MHz	Yes	32Mb	144Mb	1Mb	14-inch	2.1Gb	8x	256K	3 PCI	Modem	7.5.5	£1,712
Software: *FaxSTF, Front Office VoiceMail, NetMatters Internet Ready CD, TechTool Pro*														
Apus 3000/240	PPC 603e	240MHz	Yes	16Mb	144Mb	1Mb	Extra	2.1Gb	8x	256K	3 PCI	Ethernet	7.5.5	£1,669
Apus Pro 3240	PPC 603e	240MHz	Yes	32Mb	144Mb	1Mb	14-inch	2.1Gb	8x	256K	3 PCI	Modem	7.5.5	£2,173
Software: *FaxSTF, Front Office VoiceMail, NetMatters Internet Ready CD, TechTool Pro*														
Apus Movie Maker	PPC 603e	200MHz	Yes	32Mb	144Mb	1Mb	15-inch	2.1Gb	8x	256K	3 PCI	None fitted	7.5.5	£2,744
Extras: Miro video card, Umax scanner • **Software:** *DiskExpress II, FaxSTF, Front Office VoiceMail, NetMatters Internet Ready CD, Photoshop LE, Premiere LE, SoundEdit 16, TechTool Pro, Toast Pro*														
Apus Multimedia Studio	PPC 603e	200MHz	Yes	32Mb	144Mb	1Mb	15-inch	2.1Gb	8x	256K	3 PCI	Modem	7.5.5	£3,289
Extras: 6x CD-recordable drive, Umax scanner • **Software:** *Deck II, Director, FaxSTF, Front Office VoiceMail, NetMatters Internet Ready CD, Photoshop LE, SoundEdit 16, TechTool Pro, Toast Pro*														
All Pulsars come with a Matrox graphics card and the following software: *CD-ROM Toolkit, ClarisWorks, Extreme 3D, Fontographer, FreeHand, Hard Disk Toolkit, xRes*														
Pulsar 200	PPC 604e	200MHz	Yes	32Mb	1Gb	Card	Extra	2Gb	8x	512K	6 PCI	Ethernet	7.5.5	£2,556
Pulsar 225	PPC 604e	225MHz	Yes	32Mb	1Gb	Card	Extra	2Gb	8x	512K	6 PCI	Ethernet	7.5.5	£3,054
Pulsar 200 DP	2 x PPC 604e	200MHz	Yes	32Mb	1Gb	Card	Extra	2Gb	8x	512K	6 PCI	Ethernet	7.5.5	£3,406

RAM: how much RAM is installed? **Max RAM:** ...And how much could you install? **Video RAM:** how much extra RAM is devoted to displaying the screen image? Look out for graphics cards. **Monitor:** is a monitor included in the price? **HD:** how big is the hard drive? **CD-ROM:** is there a CD-ROM drive? If so, what speed is it? **Cache:** is there a Level 2 cache for extra speed, and what size is it? **Expansion:** what are the main expansion slots and how many are there? Choose between PCI (the most common by far now), NuBus, PDS and PC Card for PowerBooks. **Comms:** many Macs will include a built-in modem, while some business Macs will offer Ethernet for fast networking. **Mac OS:** what version of the Mac OS is included? **Price:** the estimated street price including VAT.

The Mac Zone United Kingdom

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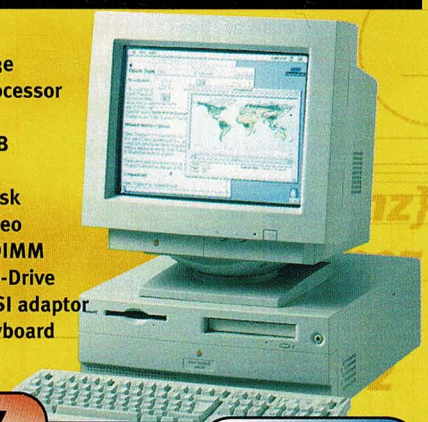
PowerMac 4400/200



- 200MHz 603e PowerPC processor
- 16MB RAM exp. to 96MB
- 1.2 or 2GB SCSI Hard Disk
- 1 or 2MB video EDO DRAM DIMM
- 8x speed CD-Drive
- External SCSI adaptor
- Includes keyboard & mouse

NEW £899.00

PowerMac 7600/132

- 132MHz 604 processor
- 16MB RAM & 1.2GB hard disk
- 8x speed CD-Drive
- 3 PCI slots & 2MB VRAM

£1,299.00

Also available: 7600/166 £1,349.00

Performa 5260

- 120MHz 603e processor
- 12MB RAM & 1.2GB hard disk
- 8x speed CD-Drive
- 14' integrated display

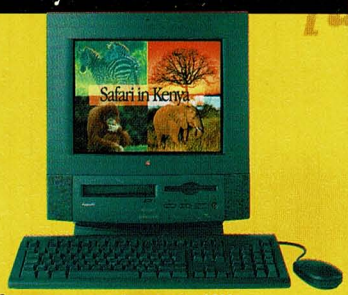
£799.00

Home Office Macintosh

- Performa 6400 180/200MHz
- 16MB RAM & 1.6/2.4GB HD
- 8x speed CD-Drive
- With 24 software titles
- Includes keyboard & mouse

Prices start from £849.00

Family Macintosh



- Performa 5400 160 or 180MHz
- 16MB RAM & 1.6GB HD
- 8x speed CD-Drive & 28.8Kbps modem
- Integral 15" Monitor
- Includes keyboard & mouse

Prices start from £1,099.00

Creative Macintosh

FREE QUICKTAKE 150 WORTH £395

- Performa 6400 200MHz
- 24MB RAM & 2.4GB Hard Disk
- Built-in AVID CINEMA
- Includes keyboard & mouse

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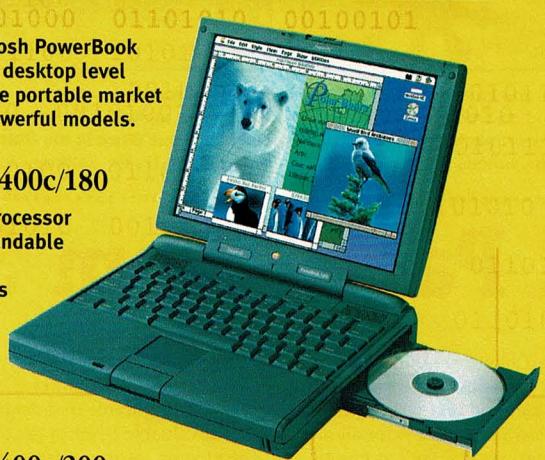

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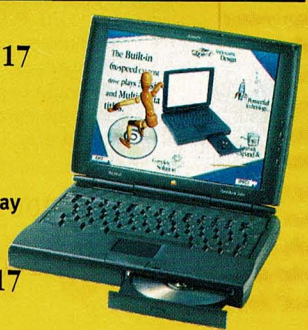

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Making objects in

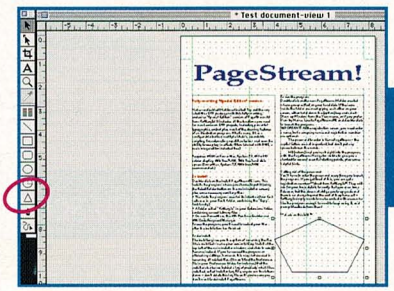
Last issue, we brought you a complete, working "SE" version of *PageStream*, the newest Mac DTP package. Here's how to use its amazing object-creation tools.

Any decent DTP package – and most word processors these days – can create lines, boxes and other simple shapes. Some can create pretty fancy polygons, and perhaps fill them with custom colours as well. But that's nothing.

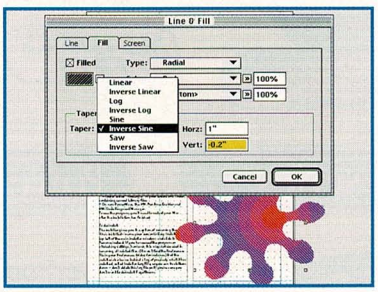
As well as being a powerful DTP program, *PageStream 3.2SE* includes some formidable drawing tools, plus some of the most amazing "fill pattern" and custom colour capabilities you'll ever see outside a dedicated paint package. Here's a brief introduction to those features, to help you discover just how much you can do with the world exclusive "Special Edition" version of *PageStream 3.2SE* that we included on last issue's bonus MACFORMAT Cover CD. (If you missed that issue, turn to page 144 to learn how you can order a copy – but hurry! With this fabulous bonus as well as our usual magnificent Cover CD, they're going fast!)

Before you print...

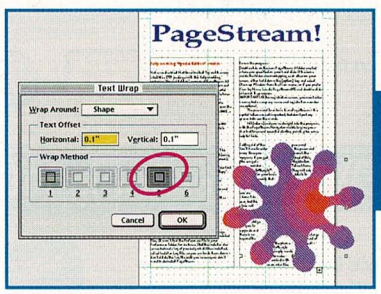
Just a reminder that before you select Print, you should go to the File menu and select the option just above it, Print Setup. Click on the button to the right of the PPD field. Use the dialogue box that pops up to go to the Printer Descriptions folder inside your System Folder, and select your printer (or the nearest equivalent you can find on the list). While you're there, select the right paper size too. Click on Save to make these settings the defaults, or Use to apply them to the current document only.



1 Select the Polygon tool (third from the bottom) and drag to create an object. (A circle shows its boundary as you do so, but the object is by default a pentangle.)



5 The control you have over the kind of colour blend, as well as the colours, rivals that of any art package. Experiment and see what the various options do.



6 Once you've got your eye-catching object, make the text run around it by selecting Text Wrap in the Object menu or hitting W. Try the settings shown here.

Upgrade to the full PageStream 3.3

The exclusive "Special Edition" version of SoftLogik's amazing new Mac DTP program *PageStream 3.2* on last issue's bonus Cover CD includes all the functions you need for everyday DTP tasks, and gives you the full flavour of the powerful features of this impressive program.

Several of *PageStream's* functions go beyond those of the industry-standard DTP giants – *PageStream* offers a configurable toolbar, zoom in up to a staggering 3,000%, multiple Undo's, text wrap on both sides of an object, superb drawing and object-creation tools, some of the most gorgeous "fill pattern" capabilities you'll ever see in a DTP program, and much more.

All these are fully usable in the "SE" version that was yours free last issue.

However, some "professional-level" and specialised features have been removed – notably, AutoSave and Auto-Backup, Save as Template, Document/Chapter Setup, Color Separations and Pantone Color Libraries, and certain text styling capabilities and text wrap options.

If you like *PageStream* and want all of these superb features – as well as much more – you can upgrade to to the very latest version, *PageStream 3.3*, with a full manual and all features enabled, for a very special price through MACFORMAT.

What you get

PageStream 3.3 boasts all the features of v3.2SE, *plus*

- Save as Template function
- Facing Pages option
- Revision History
- Thumbnails output
- Complete Colour Separations (both process and spot colours)
- Plate Control
- Auto Drop Caps and Bulleted Paragraphs
- Smart Quotes/Dashes/Bullets
- Leading mode adjustment
- Auto Ligatures
- Custom Type Styles (custom outline, shadow, reverse, etc)
- External Graphics
- Non-square Text Frames
- Fully configurable tool defaults
- An invaluable Eyedropper tool for picking up attributes from objects and applying them automatically to other objects

... plus much, much more.

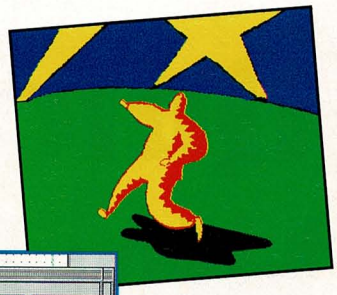
PageStream 3.3* is the affordable, easy-to-use, yet professional strength, DTP package without the heavy-weight price-tag. As a MACFORMAT reader, you can upgrade to *PageStream 3.3* for just £99 + VAT, *including delivery* in the UK and Europe – an amazing £116.35 inc VAT, delivered to your door!

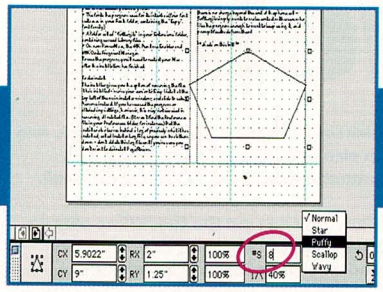
Also available

To enhance *PageStream*, SoftLogik is also making available a range of exciting add-ons that will work with either 3.2SE or 3.3, which you can buy at very special prices too:

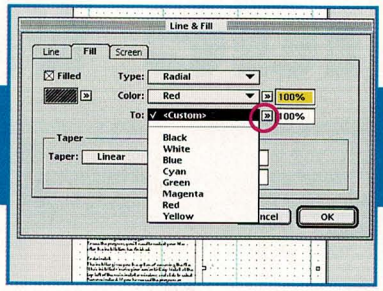
- **TextFX 2.** How often have you wished you could put text on a curve and distort it inside shapes, without

PageStream

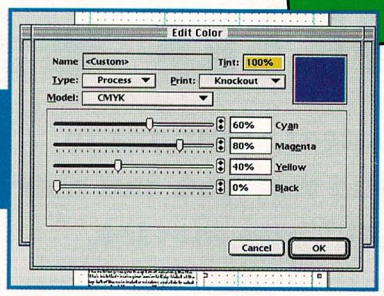




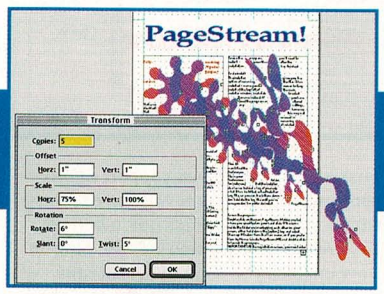
2 Switch to the null pointer (at the top) and go to the Edit Palette. Type in a new number of sides for your object and use the pop-up menu to change its shape.



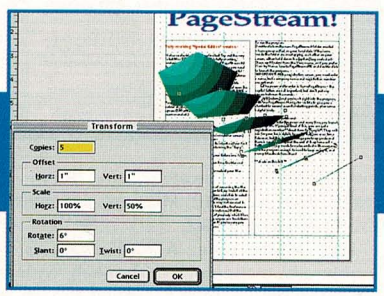
3 Double-click on the object to get the **Line & Fill** dialogue (or select it in the **Object** menu). Uncheck "Stroked" to hide the object's outline, then select the Fill tab.



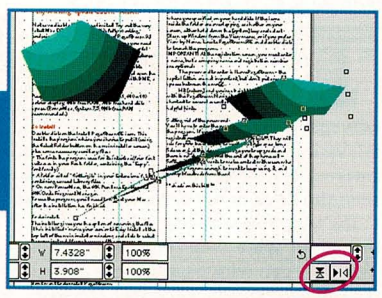
4 Give the object a tasteful striped pattern as well as a colour fill, type Radial from 100% red to a custom colour – click on the little arrow for the **Edit Colour** box.



7 That's not the end of it yet! There are lots of powerful features you can use to manipulate objects too. **Transform** in the **Object** menu has some great options...



8 Here we've applied a similar Transform operation to a simpler object, so you can see the kinds of striking effects you can get – and it's all so easy to do!



9 Experiment with combinations of tools including the shortcuts in the Edit Palette for flipping or rotating items – don't forget to select items first with the pointer.

Haven't got a PowerMac?

Last issue we mentioned that there was a bug in the CFM-68K Runtime Enabler, the Extension you need to use *PageStream 3.2SE* on non-PowerMacs. We're happy to report that Apple has fixed the bug, and the new version 4.0 of CFM-68K is perfectly safe to install. It's on this issue's Cover CD.

having to take it out to *FreeHand?* The *TextFX 2* extension for *PageStream* gives you everything you need, with a simple interface, including over 80 ready-made shapes and 30 curves to choose from, as well as any you define! *(TextFX requires Adobe Type Manager and PostScript fonts)*
TextFX 2: £30.95 inc delivery and VAT (US$50 direct).
Order code MFPSFX

■ **Borders.** Add a whole new tool to *PageStream* – just select it and draw a decorative border! The border patterns you get are professionally designed vector illustrations, so they look great at any size – their "weight" (thickness) and colour are fully adjustable. Great for posters, coupons, certificates, or just for fun on any document!
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■ ***Save £16!*** **Both sets of Borders £35.95 inc delivery and VAT (US$60 direct).**
Order code MFPS02
■ **Gary's Effects.** Nine effect filters are included with *PageStream;* this set adds another 12, ranging from Solarize, Blur, and Equalize to the totally configurable "Convolve", which includes pre-sets for Gaussian Blur, Laplacian Edge Enhancement and many more!
Gary's Effects: just £17.95 inc delivery and VAT (US$25 direct).
Order code MFPS03

How to order

That's right – as a MACFORMAT reader, you can order *PageStream 3.3* for just £99 + VAT, *including delivery* in the UK and EC – an amazing £116.35 inc VAT, delivered to your door!*

■ Use the order form on page 144, specifying **PageStream upgrade,** order code **MFPS01** (or the appropriate order code for the *PageStream* add-ons listed above).

■ Alternatively, phone our order hotline, **01225 822511** (9am – 6pm).

■ **Readers outside the UK and EC:** contact us first for details of delivery charges – phone +44 1225 822511, fax +44 1225 822523, or e-mail **subs@futurenet.co.uk.**
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Mention MACFORMAT and the *PageStream 3.3* upgrade will cost you US$150 direct from SoftLogik.

■ **All the offers on this page expire on 30 June 1997.**

***Delivery included to UK and EC addresses. Overseas readers, contact us for delivery charges, or call SoftLogik in the US direct. *PageStream 3.3* will be mailed to you complete with printed manual, but without bulky, wasteful packaging. Orders will be despatched as soon as we receive stocks of the manual – please allow 28 days for delivery.**

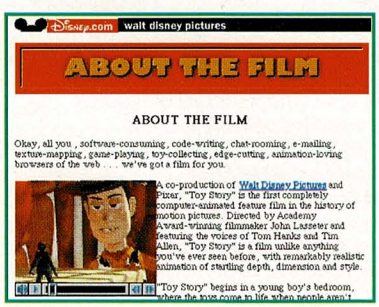
QuickTime on the World Wide Web

One of the latest additions to the Web is the way you can now embed QuickTime movies, complete with sound, into your pages. Jonathan Ferman shows you what's in this for you.

QuickTime 2.5, MPEG Extension, QuickTime plug-in 1.1, *Movie Cleaner Lite.*

The Internet is the fastest growing computer phenomenon of the decade. It seems impossible to pick up a newspaper or magazine, or even watch television without some reference to the Internet appearing. The area which has seen the most innovation, and is closest to the way you work on your Mac, is the World Wide Web (WWW).

It all began with pages of text and the occasional graphic, as the Web became popular in the early '90s. Pages were displayed using Web browsing software, the most prevalent application being Netscape's *Navigator*, with Microsoft's *Internet Explorer* closing in fast.

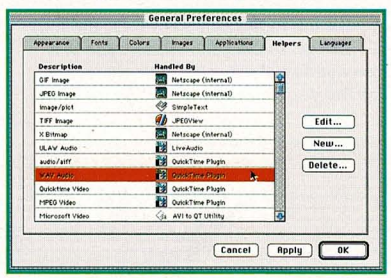


Many large companies such as Disney have used QuickTime and QuickTime VR movies on their Web sites to make it more fun for their visitors.

Last year, however, Apple brought its multimedia technology to the Web, with the QuickTime plug-in, included as part of *Navigator 3.0*. This enabled users to watch QuickTime movies and listen to sound and music from within *Navigator*. The plug-in has been very successful because, like QuickTime, it is cross-platform. This means it will work on PCs too, and there are versions of the plug-in available for Windows 3.1, 95 and NT.

QuickTime animations are fun to watch, and can also include music and sound. Fortunately the file sizes tend to be small.

Below: You can get the QuickTime plug-in to handle more file types in the Helpers window of your Browser's preferences.



What do you get?

Apple recently updated the QuickTime plug-in to version 1.1. Although this may sound like a trivial upgrade, it has brought some important new features. First, there is increased support of browsers, including *Netscape Navigator* to version 3.x, as well as Microsoft's *Internet Explorer 2.1* and *3.0*. Second, the plug-in now enables you to view QuickTime Virtual Reality (QTVR) objects and panoramas within the browser, where previously you needed a separate QTVR plug-in. Finally, if you've got a PowerPC-based Mac with the QuickTime MPEG Extension installed, you can now view MPEG 1 movies in your browser.

In a recent study, the Internet Multimedia Technology Survey found that of all the sites on the Web with multimedia content, over 53% are accessible with the QuickTime plug-in. If you have both version 1.1 of the plug-in and the MPEG extension installed, that figure jumps to over 86%. So you can think of the QuickTime plug-in as a one-stop solution

How to optimise your movies for the Web

The main reason for adding QuickTime to your Web site is to make it more interesting for the users. However, in order to avoid frustration, you should optimise your movies for the Web.

Remember when QuickTime first gained popularity on CD-ROMs – those postage stamp-sized movies which tended to look grainy and washed out? The main reason why these movies were of poor quality was that to include more detail would mean that your Mac wouldn't be able to process the necessary data fast enough.

Since then, both QuickTime and computer technology have moved forward in leaps and bounds. It's still worth remembering the problems associated with early QuickTime movies as guidelines for making effective movies suitable for the Web, though.

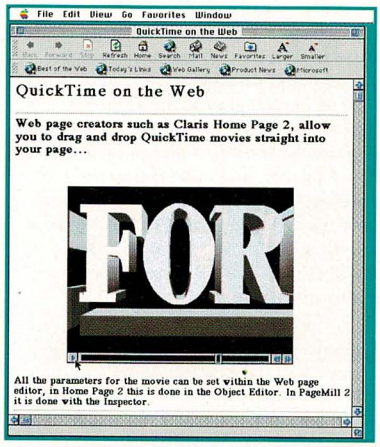
1. Keep your movies small. This is the golden rule. If your movies are too large, users are likely to get frustrated, stop downloading and potentially avoid your site altogether. Bear in mind that many users – including consumers and small businesses – are running up their phone bill every second of time they are on-line.

The easiest way to reduce the file size of a movie is to reduce its window size. This is simple and can be done with an application like Apple's *MoviePlayer*. To make a new size for your movie window, open the movie and then select Get Info in the Movie menu. In the Get Info dialogue box select the Video Track from the pull-down menu on the left and select Size from the pull-down menu on the right. You should now see two buttons, Adjust and Normal. Click on Adjust and the movie window becomes highlighted. Now drag one of the corners of the window until your movie is the desired size. (For details on *MoviePlayer*, check out MACFORMAT 48. Turn to page 144 if you missed it.)

2. Reduce the number of colours. The more colours in your movie, the more data it requires, so it's worth reducing the number of colours to say 256 or – at a push – Thousands. There are still a lot of users, particularly those with PCs, who can only display 256.

3. Keep it short. The other way to reduce a movie's file size is to make it short. If it's a long movie you could break it up into segments and then join the segments together using hyperlinks. These links could take you to another part of a page or a new page completely and could perhaps take the form of a still from the first frame of your movie.

4. Compress your movie. Once you have created your movie you


File Edit View Go Favorites Window
QuickTime on the Web
QuickTime on the Web
Web page creators such as Claris Home Page 2, allow you to drag and drop QuickTime movies straight into your page...
All the parameters for the movie can be set within the Web page editor, in Home Page 2 this is done in the Object Editor. In PageMill 2 it is done with the Inspector.

Version 1.1 of the QuickTime plug-in has expanded its browser support to Browsers other than *Netscape Navigator*, most notably Microsoft's *Internet Explorer*.

for the playback of virtually all types of multimedia files on the Web.

Why bother?

The question remains, is it worth using the QuickTime plug-in? After all, there are numerous plug-ins available for Web browsers. The answer really depends on how you use the Web. What sort of sites do you visit? Many major sites such as the television news channel CNN (**http://www.cnn.com**) and Disney (**http://www.disney.com**) use QuickTime movies or QTVR movies to enhance their Web sites and make them more compelling to visit.

However, if like most users you access the Web with a 28.8kbps modem or slower, until recently you may have thought twice about downloading QuickTime movies. Apple realised this lack of speed was a problem and came up with something called "fast start". The "fast start" feature of the QuickTime plug-in enables you to begin watching QuickTime movies, or listening to sound files such as AIFF or WAV formats, before they've finished downloading. Previously you had to wait until an entire movie had been downloaded before you could view it. The great advantage of the "fast start" feature is that the first few seconds of the movie should download relatively quickly, enabling you to decide whether or not it's worth continuing the download through to completion.

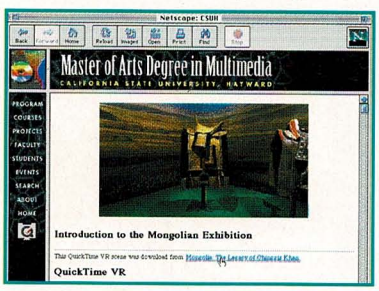
How to use the plug-in

To get up-and-running with the QuickTime plug-in, drag-and-drop it into the Plug-ins folder of your Web browser. If you're using *Navigator 3*, you might be asked if you want to replace the current plug-in with the newer version, in which case click on **OK**. Once you've put the plug-in into the Plug-ins folder it's time to take it for a spin on the Web.

A good place to start is the QuickTime Samples Web site at **http://www.mediacity.com/~erweb**. Here you'll be greeted with some background music, an example of a QuickTime animation and a number of QuickTime and QuickTime VR movies. Select a movie and, once it has finished downloading, click on the movie; keep your mouse button held down and you'll get a dialogue box. This gives you a number of options. The first thing you should select is **Update MIME Types...**, which updates your Web browser and tells it to use the QuickTime plug-in for QuickTime movies. This instruction won't go into effect until you Quit and then relaunch the browser.

You may also want to update your browser's preferences to let the QuickTime plug-in handle other file types, such as AIFF or WAV sound files. The advantage of using the plug-in with these file types is that you can use the "fast start" feature – in other words you'll be able to begin listening to the sound file before it has completed the download. If you are using *Netscape Navigator 3.x* and you want the plug-in to work with more file types, you need to select **General Preferences** from the **Options** menu. In the **General Preferences** window you will see a number of elements which you can customise – you need to select Helpers. Now select the type of file you would like the QuickTime plug-in to handle. Apart from those file types that the QuickTime plug-in will already have updated, you can also change the following so that they are used with the QuickTime plug-in: WAV audio, audio/AIFF, and MPEG video.

Select each file type and then select **Edit...** You will be presented with the **Edit** window. In the **Handled by** part of the dialogue box, click on the radio button with **Plug-in:** next to it, then just select the QuickTime plug-in in the pull-down list. Repeat the edit process for all the other files you want the QuickTime plug-in to handle. This procedure should work for earlier versions of *Navigator*. In *Explorer* you'll need to select **Preferences...** and then select **Helpers.** If you are unsure of which file types are suitable for the QuickTime plug-in it is probably best to stick with the default plug-ins or Helper applications that your browser has chosen on your behalf.



QuickTime VR movies enable you to make an interactive visit to, say, a museum, zooming in on features and letting you view objects from almost any angle.

Other Ideas

If you want to add some music to your Web page, then QuickTime Music is an excellent opportunity. First you will need to convert your music, which will probably be in the form of MIDI, into a QuickTime movie. If you don't know how to do this, or want to get more music from the Web, check out the tutorial in MACFORMAT 49 on QuickTime Music Architecture (see page 144 for ➤

Save up

To save a QuickTime movie you need to click and hold on the movie until the QuickTime plug in dialogue box comes up. This offers you the option of saving the movie. You can't save the movie from the **Save As...** command in *Navigator's* **File** menu.

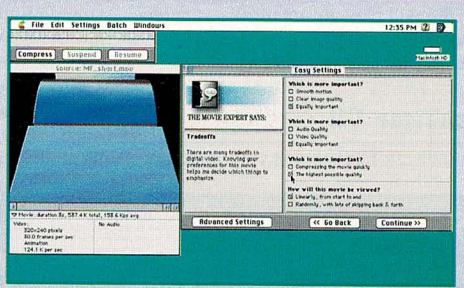
Uncontrollable

Occasionally, you'll come across a movie without a playback control bar. If you find one of these, simply **double-click** on the movie to start it playing, and **single-click** to stop it. It's easy, but it lacks the elegance of the control bar.

should compress it. This reduces the file size and therefore the download time. There are a number of applications available to do this, but perhaps the best is Terran Interactive's *Movie Cleaner Pro*, a plug-in module from WebMotion, available from http://www.terran-int.com/.

5. Convert your movie. This is a two-stage process which involves changing the structure of your movie file. There are two elements to change: the resource fork and the meta data. When you create a QuickTime movie on a Mac the file contains a resource fork, which holds certain information about the movie. Other operating systems can't read this properly, so you have to get to get rid of it. QuickTime movies created in versions of QuickTime before 2.5 also have something called meta data at the end of the file. This holds information including things like the size of the movie, and it needs to be moved to the front of the file in order for the new "fast start" feature to work.

The movie conversion process can be done in *MoviePlayer 2.5* (part of QuickTime 2.5) by selecting the Make movie self contained and Playable on non-Apple computers items in the Save As... dialogue box. If you have a lot of movies to convert, use the *QuickTime Streamliner* utility, and simply drag-and-drop all your movies over it together to convert them.



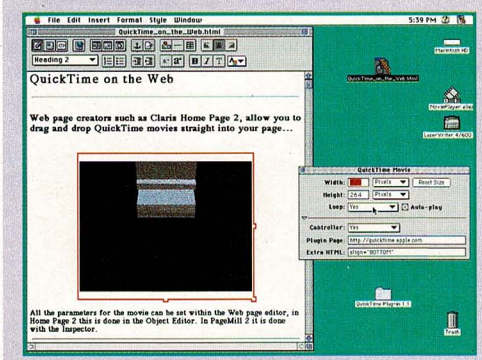
Terran Interactive's *Movie Cleaner* is an excellent application for compressing QuickTime movies to reduce download times.

6. Change the file name. Save your movie with a file name of eight characters or less and make sure you include the .mov suffix – for example, "my_movie.mov". This is essential in order for browsers to recognise that the file is a QuickTime movie, and it enables your movie to be played on Windows 3.1 systems.

How to add QT to your Web site

With your movie or movies ready (see the "How to" box on page 62), it's time to put them in to your Web site. This involves HTML (Hypertext Markup Language) – the language your browser uses to interpret Web page information. It's not as complex as it sounds; in fact HTML is very simple. Here's an example of what you would type to include (or "embed") a QuickTime movie in a Web page:

<EMBED SRC="my_movie.mov" HEIGHT=176 ¬ WIDTH=136>


QuickTime on the Web
Web page creators such as Claris Home Page 2, allow you to drag and drop QuickTime movies straight into your page...
All the parameters for the movie can be set within the Web page editor, in Home Page 2 this is done in the Object Editor. In PageMill 2 it is done with the Inspector.

By removing the HTML element, Web page editors like *Claris Home Page 2.0* simplify the process of adding QuickTime files to your Web pages.

From the example given, you would simply replace "my_movie.mov" with the name of your movie, remembering to change the height and width to match that of your movie. On a movie with a height of 160 pixels you would also need to add an additional 24 pixels, in order for the end users to be able to use the playback control bar. This is where they'll get essential functions such as frame advance and playback speed. If you are unsure of what the height and width for your movie is, open it in *MoviePlayer* and select Get Info from the Movie menu, then select Size from the right pop-up menu.

There are a number of options other than HEIGHT and WIDTH which you can set for your movie within the EMBED command, including the volume and whether you want the movie to play automatically. To find more details of the other EMBED options go to http://quicktime.apple.com and look in the Developer section. If this all seems a bit too complicated, don't worry. Many new HTML editing applications have appeared recently, such as *Adobe PageMill 2.0* and *Claris Home Page 2.0.* These enable you to simply drag-and-drop movies into Web pages.

If you want to find out more about Web page editor and creator packages, then take a look at MACFORMAT 47, where we reviewed five of the latest graphical HTML editors. If you would like a copy of this issue, turn to page 144 to order it.

Important!

The ¬ symbol we've used in our scripts indicates that the instruction hasn't ended but continues on the next line. When you see this, don't enter the ¬ symbol or press **[return]**, simply carry on typing.

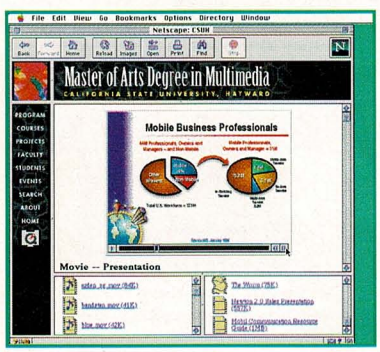
details on how to obtain that issue). The great benefit of MIDI is that it is very small in terms of file size – typically between 30K and 80K. QuickTime Music is particularly good as background music and if the music file you use is small, you can use it as a musical interlude – useful if there are some large graphics that will take a while to download on to your page. Here's an example of how to embed a QuickTime music file:

<EMBED SRC= "music.mov" HIDDEN ¬ CONTROLLER=FALSE LOOP=TRUE AUTOPLAY=TRUE>

The file should be **HIDDEN** if you are using it as background music, with no **CONTROLLER** (control bar). The **LOOP** setting means that the file will play continuously while the user is on that page. The **AUTOPLAY** setting means that the music file will play automatically as soon as it has downloaded and is essential if the music file has been hidden.

QuickTime VR

QuickTime VR has become very popular


Master of Arts Degree in Multimedia
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Mobile Business Professionals
Movie -- Presentation

With the QuickTime plug-in installed you can even give your presentations directly from your Web browser.

on the Web. It enables you to look at objects from a range of perspectives. You can also use it to view panoramas. QTVR panoramas involve stitching together several photographs to make a scene. A number of Web sites use this because it gives the users a high degree of interactivity. QuickTime VR is a great way of visiting museums because you have a much greater field of vision, as well as the ability to zoom in and out to view particular areas in greater or lesser detail. QuickTime VR movies are usually made up of high-quality images from digital cameras and considering this quality you may be surprised at their file size – typically less than a megabyte for a single panorama. The size depends on a number of factors, including the size of the window, the quality of the images and how many images the QTVR panorama or object contains. To find out more about QuickTime VR go to **http://qtvr.quicktime.apple.com**.

QuickTime Animation

This is similar to animated GIFs, in the sense that it is a series of moving pictures. However, with QuickTime animation, unlike animated GIFs, you can add music or sound. Because animations tend to be more simplistic than QuickTime video, they are generally a smaller file size. There are several applications designed for making animations and saving them as QuickTime movies, including *Cinemation 1.1* and *PaceWorks* (**http://www.paceworks.com**).

QuickTime Presentations

Presentations turned into QuickTime movies are useful for intranets (internal computer networks) and to enable people around the world to view your presentation on the Web. You could even use your Web browser with the QuickTime plug-in installed to give a presentation. The easiest way to make a QuickTime presentation is to turn all your slides into PICT files, number them and then use *GraphicConverter* to turn them into a QuickTime movie. (You'll find it on our Cover CD.) You can then use the control bar to move forwards or backwards through the slideshow you've created. Neat, huh?

The future

Apple plans to make the "fast start" feature of QuickTime movies available for QuickTime VR movies in a future release of the QuickTime plug-in. There are also plans to make the plug-in work with JavaScript, Sun's multi-platform computer language that has been adopted by all the major computer operating systems and is becoming increasingly popular on the Web. You can also expect to see QuickTime movies appearing in more Web sites, as new modems mean the speed at which people connect to the Internet improves dramatically. **MF**

Sites to see

- **To get even more information on the QuickTime plug-in and how you can use it in your Web pages go to: http://quicktime.apple.com/**
- **To try out QuickTime on the Web go to: http://www.mediacity.com/~erweb**
- **To find out more about QuickTime VR and visit examples of VR movies in Web sites go to: http://qtvr.quicktime.apple.com/**
- **You'll find more examples of QuickTime in use at sites like: http://www.disney.com/ (from Disney, the people that brought us Mickey Mouse) and http://www.cnn.com/ (for news from around the world)**
- **Don't feel like writing the HTML for your QuickTime movies yourself? Try the Web page creation applications from: http://www.adobe.com/ (*PageMill 2.0*) and http://www.claris.com/ (*Home Page 2.0*)**
- **To compress your movie try *Movie Cleaner Pro*, available from: http://www.terran-int.com/**
- **QuickTime animation creation: http://www.paceworks.com/**

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Colours have never been so brilliant or images so sharp! Introducing SonicTron™ - the latest colour soaked screen technology from ViewSonic that sets new standards. However demanding your applications, SonicTron™ will bring your screen to life with vivid colours and razor sharp definition that will amaze you.

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Experts are unanimous on both sides of the Atlantic, in their praise of the new ViewSonic SonicTron™ 21" PT810 and the 17" PT770.

German PC-Magazin in May 1996:
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French Pixel magazine, No 28, 1996:
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"The User's Choice Award for this year goes to the ViewSonic Professional Series PT810... Highly recommended."

SonicTron™ Professional Series			
Model	**PT810**	**PT770**	**PT775**
Aperture Grille Pitch	0.28mm	0.25mm	0.25mm
CRT Size/Viewable	**21"/20"**	**17"/16"**	**17"/16"**
Mac Resolution (Max.)	1600 x 1200	1600 x 1200	1600 x 1200
Recommended Resolution	**1280 x 1024 @ 89Hz**	**1280 x 1024 @ 77Hz**	**1280 x 1024 @ 89Hz**

Dependent on model, **TCO'92**, EPA **Energy Star™**, **MPR-II** certified, **PC** and **Mac** compatible. © 1996 ViewSonic Europe. All rights reserved. In the interests of continuing product improvement, specifications are subject to change without notice. Features indicated may not apply to all products. All products and trademarks are brand names of their respective companies. The three bird logo and SonicTron™ are registered trademarks of ViewSonic Corporation. Microsoft, Windows and the Windows logo are registered trademarks of Microsoft Corporation.

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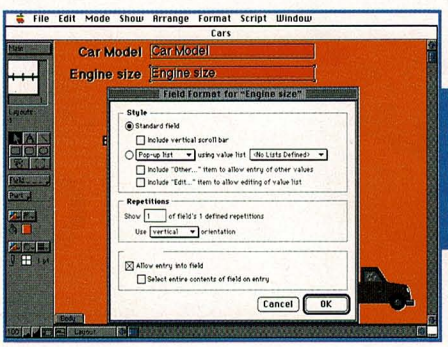
Value added lists

Mastering value lists is essential if you want to have a happy time with FileMaker Pro. Derek Smith tells you everything you need to know...

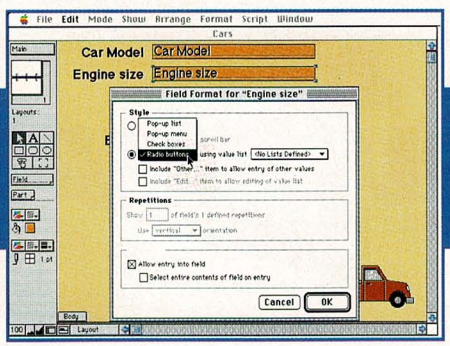
What's a value list? It's a list of values from which you can select. Maybe this doesn't sound too exciting, but it is extremely important – let me explain.

Let's suppose you have a database of addresses, with a field for the county. You could merely type in free text, for example "Cambridgeshire". If you were, say, to print labels with this information, there would be no problem, but it would be better, for three reasons, to choose your county from a value list.

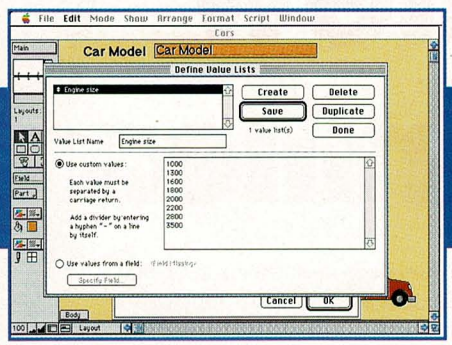
First, there's speed – it's a lot quicker to click on "Cambridgeshire" than to type it. Second: accuracy – as long as the original is spelt correctly, there'll be no spelling mistakes or typing errors. Third,



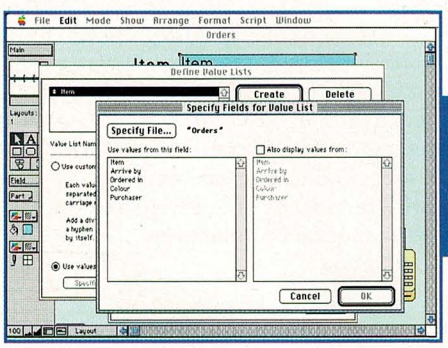
1 In your Cars database, you want to record the engine size of each model. Enter the Layout mode, then select the Engine Size field and choose **Field Format** from the **Format** menu.



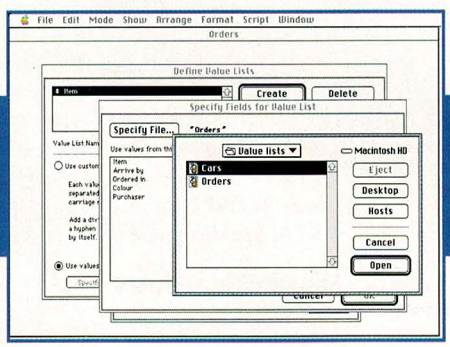
2 Select **Radio Buttons** from the pop-up menu. Radio buttons are good for a field that can only ever have one value – for example, each model of car can only have one engine size.



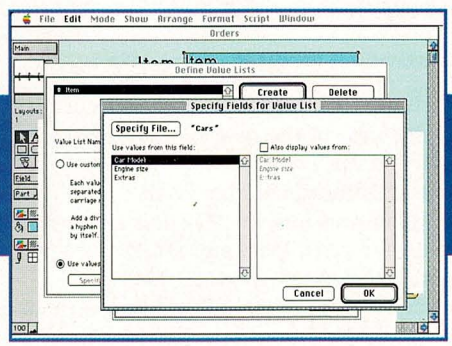
3 Select **Define Value Lists** from the next pop-up menu. Type in a name for your value list and click **Create.** Then type a list of values, separating each one with a return.



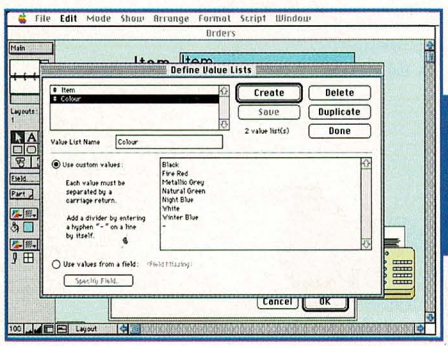
7 Instead of re-typing the models of car already entered in your Cars database, you'll use the index of the Car Model field. Click on **Use values from a field.**



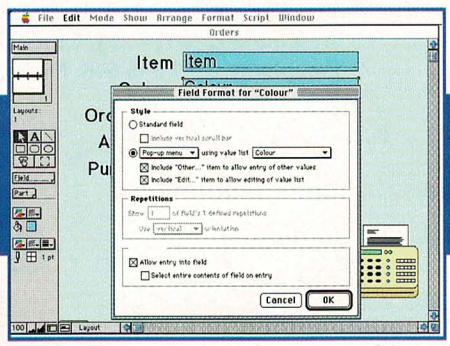
8 The **Specify Field** dialogue box appears. You can use the index from a field in the current database or a different one. Click the **Specify File** button and select the Cars database.



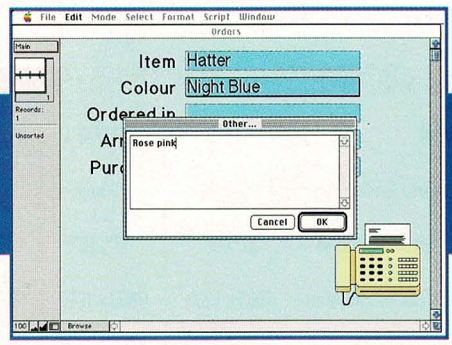
9 You'll now see all the fields from the Cars database. Select the Car Model field. Click **OK,** then click the **Save** button, and finally click the **Done** button.



13 Bring up the **Field Format** for the Colour field. This time, you can use a pop-up menu of colours in preference to a pop-up list, because there will never be a huge range of colours.



14 Now tick the **Include Other** and **Include Edit** boxes. These will appear at the bottom of the pop-up menu below the divider line we've inserted by typing a minus sign in the value list.



15 Choosing **Other** brings up a dialogue box that enables a free text entry. You'd use this for one-off colours that you don't want to keep appearing in the pop-up menu.

there's consistency. If several different people type in the names of counties, one might write "Cambridgeshire" while another might put "Cambs". When you actually come to do a find on the word "Cambridgeshire" you won't find "Cambs". So the rule is, if you can use a value list, do so!

Keeping your hands clean

Although *FileMaker Pro* has always had value lists, version 3 introduces a couple of very useful new features. First, you can edit the value list on-screen, with no need to get your hands dirty defining fields. Second, you can automatically create a value list based on the index of another field. An index is an alphabetical list of all the values contained in a field throughout the database.

An example might be where you have a database of companies, from which you purchase goods, and a separate database where you enter those purchase orders. Within this orders database, you need to enter the name of the company involved – here, you could have a pop-up value list of all the companies in the company database. This ensures you cannot order from a company until you have recorded it properly in your suppliers database.

The best way to understand anything in a computer program is to have a go yourself, so we'll take a look at an example database. You're a car dealer who wants a database of cars you sell, and a database of sales you make...

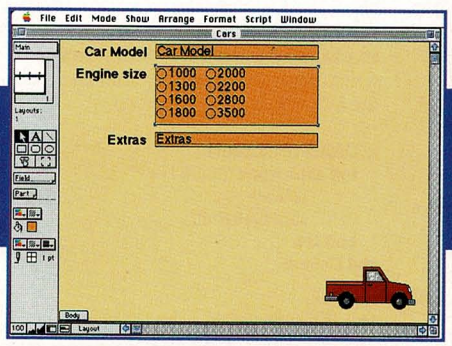
We want you

This is another in an on-going series about *FileMaker Pro 3*. Many of the articles are based on your suggestions and questions, so keep them coming. What topics would you like us to cover? What are the questions that you would most like to see answered? Or do you have some top tips that you would like to share with us?

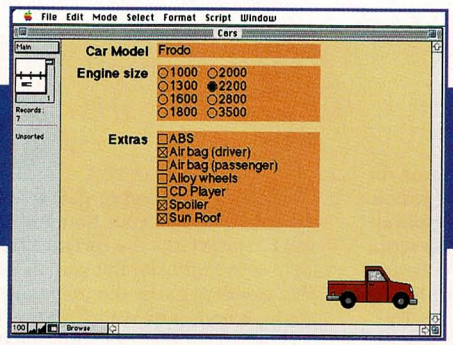
Whatever the case, write to us here at "FileMaker Pro", MACFORMAT, 30 Monmouth Street, Bath BA1 2BW. Alternatively, e-mail us at macformat@futurenet.co.uk

ON THE CD

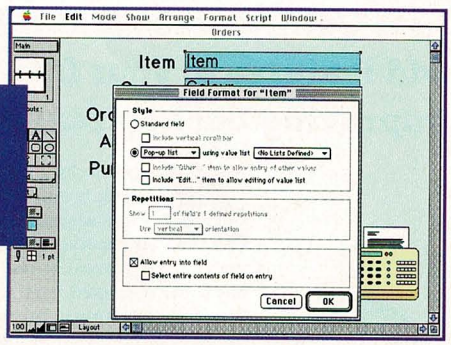
Both of the databases here are on the Cover CD, so you can dissect them and see how they work.



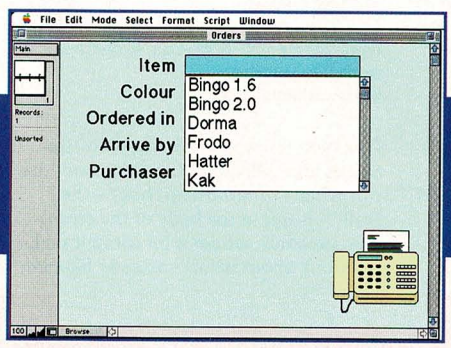
4 You will almost certainly need to change the shape and size of the field. As soon as you do, *FileMaker* takes an intelligent guess at how you want the buttons laid out.



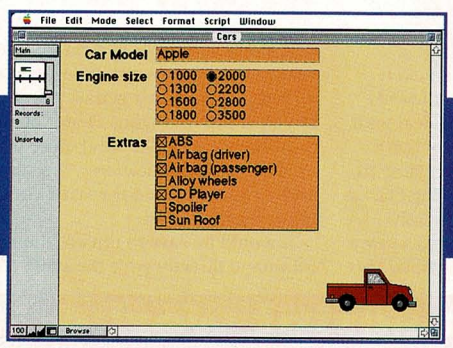
5 Still in Layout mode, select the Extras field and choose **Field Format** again. This time you'll have check boxes. This is used where a field can have several values.



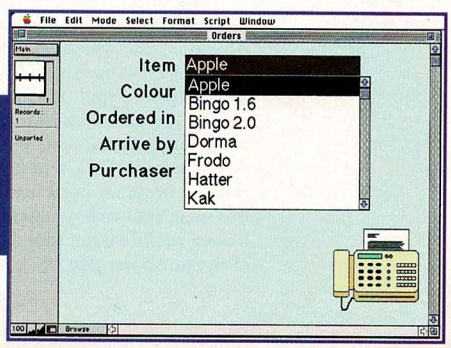
6 Now to the **Orders** database. Select the Item field and choose **Field Format.** This time you'll use a pop-up list. These are useful where a large value list would produce too big a pop-up menu.



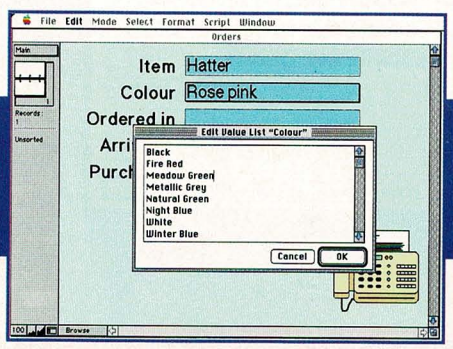
10 Let's test it out. Enter Browse mode and click or **[tab]** into the Item field. You'll see a pop-up list of all the car models that you've created in the Cars database.



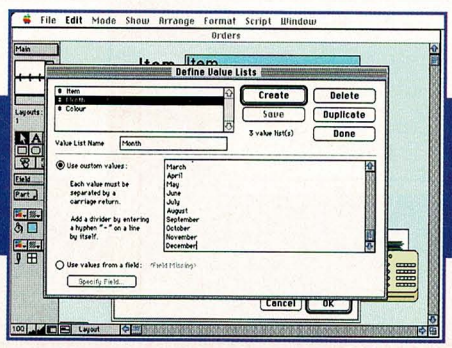
11 To prove this is a live link, swap to the Cars database. Now create a brand new car by choosing **New Record** from the **Mode** menu and entering some dummy data.



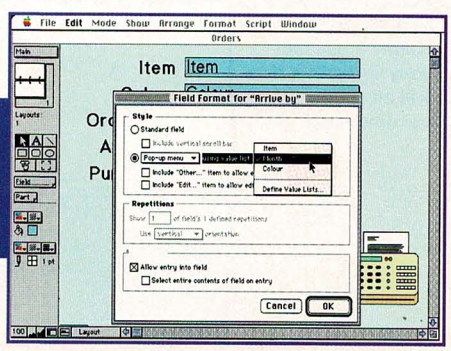
12 Now return to the Orders database, and click or **[tab]** into the Item field again. This time, the pop-up list will display the name of the car you have just created.



16 If you want to edit the pop-up menu, to permanently add a new colour to the list, choose "Edit" from the bottom of the pop-up menu. This enables you to edit the value list on the fly.



17 You can now create a pop-up menu containing the months of the year for the Ordered In field. There's no need to click the **Include Other** and **Include Edit** boxes this time.



18 The Arrive By field also requires a pop-up menu of months. You can use the same value list that we created for the Arrive By field – another thing you couldn't do in previous versions.

Fit to burst!

The power of AppleScript stretches far beyond the Finder. Scripting tools in hand, Nial Grimes uses *StuffIt Lite* to add features to your fast-improving backup script...

ON THE CD

Example scripts that you can follow.

AppleScript's very reason for being is automating tedious tasks across many applications, but the backup script we've created over the last few issues has so far restricted itself to the Finder. This issue it's time to break free. The aim is to carry on using the Finder to decide which files we want to back up, and to put the files straight into a *StuffIt* archive, thus taking the pressure off your hard drive.

You needn't feel daunted by the prospect of dealing with another application. As you've discovered, AppleScript is designed to be user-friendly, and even enables you to split up your commands so that you can see which parts deal with which application. Last issue, you gave your script a brain – and now it's time to put that brain into practice. By the end of this issue's tutorial, you will not only have a useful Finder tool, but also a grasp of the principles that drive all scripts. This is your chance to gain more control over your Mac – so let's get down to stuffing some files...

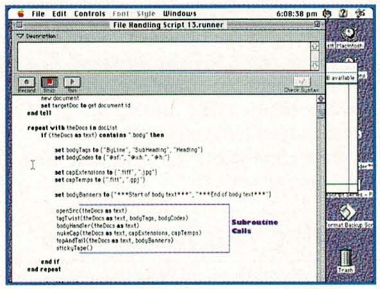
Just add stuffing...

Now that you're used to working with AppleScript and the Finder, talking to a new application is easy because the methods are the same – you just need to add a couple of commands to your vocabulary. Run *StuffIt Lite 3.5* (you'll need to have registered your copy) and create a new archive. Now switch back to the **Script Editor** and type the following into the window (you can get a "™" by typing **[option] 2**):

```
tell application "Finder"
    copy (file "Note Pad File" of folder ¬
    "System Folder" of startup disk as text) to ¬
    fileRef
end tell
tell application "StuffIt Lite™"
    activate
    stuff fileRef
end tell
```

Check the syntax and run the script in the usual way and your Note Pad File will be stuffed into the current (front) archive in *StuffIt Lite*. But you are probably wondering why the command to the Finder is necessary. Well, it's because so far we've been dealing with Finder objects – disks, folders and files. *StuffIt Lite*'s objects are different; they are folders and files within an archive. Fortunately, AppleScript enables you to convert these Finder objects to a "file reference" that all other applications can understand. To do that, **copy <object> as text to <new variable>**. Don't worry if you don't understand why this works; just as long as you realise that your Finder objects must be tweaked like this before being used by other applications. You now know enough to add the **stuff** command to the backup script.

It would be easy to replace the **copy** command directly with the **stuff** command, but it makes more sense to keep the portion of the script where you are talking to *StuffIt Lite* separate. To do that, you use a "subroutine", which is a bit like a command that you create yourself. The easiest way to illustrate this is to use an example. Open last month's backup script, move to the very bottom and type the following:



Subroutines split scripts into manageable chunks – ideal for dealing with more than one application in a single script...

```
to DoStuff(fileToStuff)
    tell application "StuffIt Lite™"
        activate
        stuff fileToStuff
    end tell
end DoStuff
```

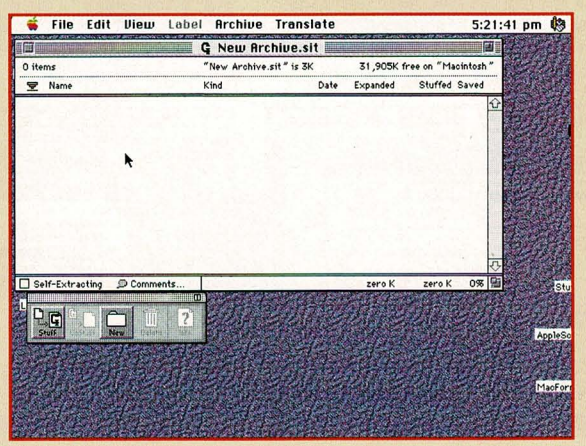
This is a subroutine – the command it contains is only run when the subroutine is "called". That means including the following lines in your script, in place of the main copy command (**Example Script 5** on the Cover CD contains both of these changes):

```
copy (file currentFile of folder folderChosen ¬
as text) to stuffThis
my DoStuff(stuffThis)
```

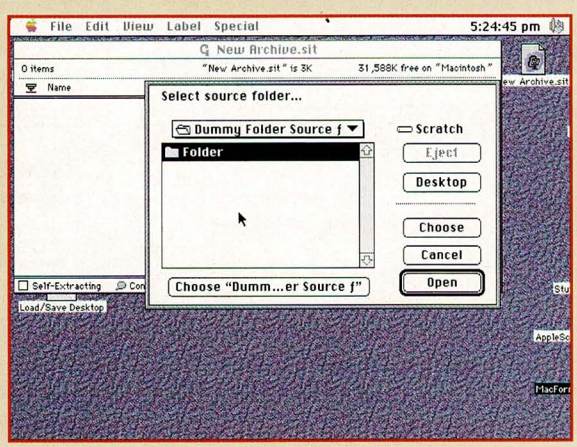
First, you tell AppleScript how to "DoStuff", and then all of the commands are run when "DoStuff(stuffThis)" – the "call" – is put in the body of the script. That probably sounds a bit complicated, but think about what is actually happen-

How the backup script works

Wondering how the backup script works now you've retreated from the Script Editor? Follow these four easy steps, and it will all suddenly become clear...



1 Run *StuffIt Lite* and create a new archive in a safe place; if you keep backups on floppy disks, create the archive on your hard drive, and copy it to a floppy later.



2 Double-click on its icon and choose a folder to back up. Remember, folders within this folder are not touched.

ing. The script reaches the line "DoStuff (stuffThis)" and then instantly jumps to the "DoStuff" subroutine. The command (or commands) it contains are run, and then AppleScript returns to its original position – you could compare it to reading a book, jumping to the appendix and then returning to your original page.

Subroutines are completely separate from any other part of your script, so if you try to use a variable you've set up in the body of your script in the DoStuff subroutine, AppleScript will complain. Instead, you "pass" variables to subroutines. This involves two sets of brackets: the first are included in the call and contain the variables that you want to pass, separated by commas. Then, at the beginning of the subroutines you "catch" them again, and include the names of the variables you want to put them in, indicating this by using brackets.

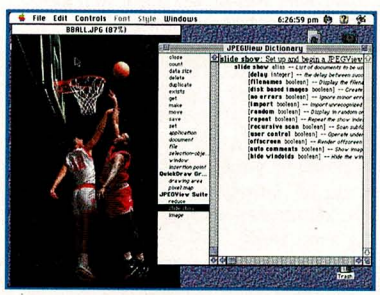
In the example, this means that the variable "StuffThis" is passed to the "DoStuff" subroutine. This is picked up and put into a new variable called fileToStuff in the subroutine itself.

The benefits of subroutines grow greater the more you use them. The main advantages are:

- Your scripts are easier to read and easier to write. A well structured script could consist of a number of subroutine calls, allowing you to write it in manageable chunks.
- They are "portable". Subroutines use "local" variables (in other words, they don't rely on variables you use in the rest of your script) so they can be copied to another script and used instantly.
- Subroutines are efficient. If you are performing the same task over and over again, it makes sense to bundle the operation into a single subroutine that can be called from anywhere in your script.

You can position subroutines anywhere in your script (they are ignored until they are called), but it makes sense to put them at the bottom.

Now that the subroutine is in place, you can remove the section of the script that deals with choosing the destination folder (a **choose folder** command, and the line that follows it) and start to benefit from your hard work.



Once you have a file reference, you can use it with any scriptable application from *StuffIt Lite* to *JPEGView*.

It's alive!

At last the script is complete. To use it, just choose **Save As** from the **File** menu, using the **Application** option in the dialogue box that appears. You can now open the archive you want to stuff your files into, and then run the script to choose a folder to back up. It's useful and, more importantly, you should by now understand how it works.

Even so, there is still plenty of room for improvement, and you now have enough knowledge of AppleScript to plan some changes of your own. The concepts you have learned – variables, loops, conditions and subroutines – are the basis of every script written, from simple time-savers to complex projects. Over the coming months in MACFORMAT, we'll be expanding on these ideas with more powerful scripts, giving you more power and control over your Mac and your applications. Let us know what particular tasks you'd like to learn how to tackle! In the meantime, put in some practice, and you'll soon have all your applications eating out of your hand. **MF**

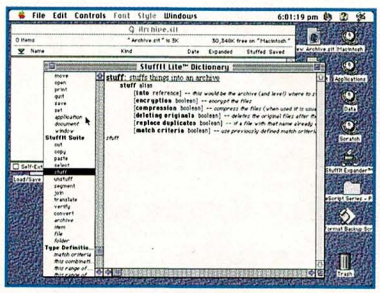
The command performance...

Confused, bemused or perplexed about some of the commands used this month? Let's take a quick run through to clarify...

copy (<object> as text) to <variable>
Objects vary between applications; an object in the Finder is a file or folder, but to a desktop publisher, it could be a window followed by a frame. By using the as operator you can convert Finder objects into a file reference that all applications can understand. In the example we're following this issue, Finder objects can't be used with the stuff command; instead, you need to convert them to a file reference by copying them "as text".

to <subroutineName>(<variable name>, ¬ <variableName>, ...)
– Put commands here
end <subroutineName>
A subroutine fits into the above framework. To "call" or use the commands in the subroutine, you simply put my <subroutine name>() in your script.

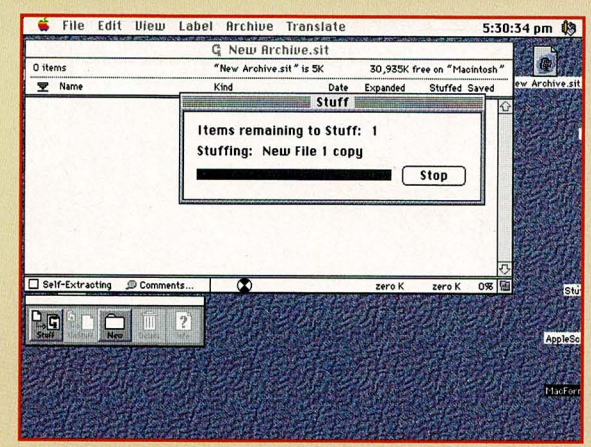
stuff <file reference>
Addressed to *StuffIt Lite*, this command stuffs the specified file into the frontmost archive. Named archives and other options such as encryption can be added; take a look in *StuffIt*'s dictionary for more details.



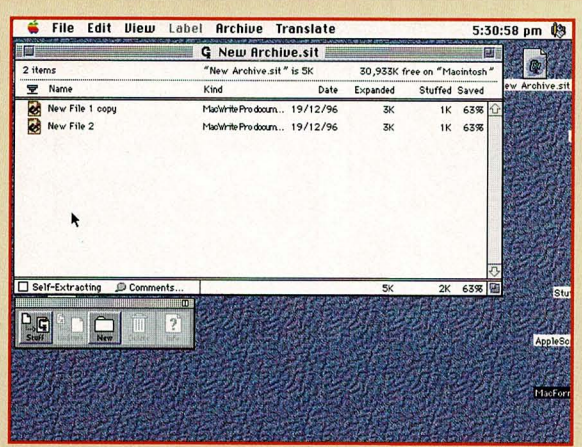
***StuffIt Lite 3.5* differs from earlier versions in terms of scripting – make sure you only have *3.5* installed and registered.**

Important!

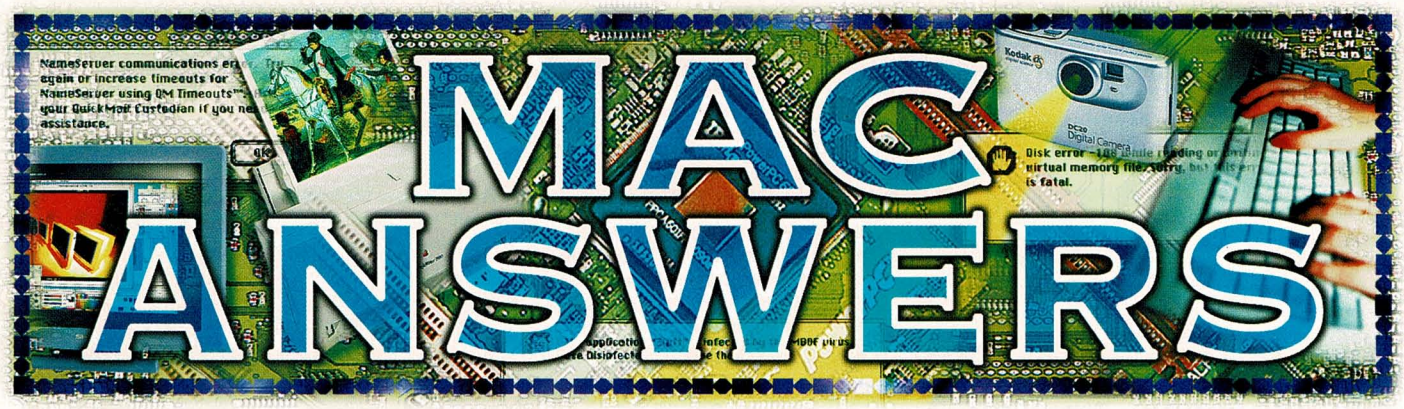
The ¬ symbol we've used in our scripts indicates that the instruction hasn't ended, but continues on our next line. When you see this, don't enter the ¬ symbol or press [return], but simply carry on typing.



3 **The script now checks each file in the folder to see whether it matches the label specified in the script.**



4 **The files that reach this stage are stuffed, and your backup archive can be stored somewhere safe in case of disaster.**



Perplexed by your PRAM? Stumped by your System Folder? Haunted by your hard disk? Whatever your Mac problem, our intrepid Mac explorers Lindsay Bruce and Jim Chandler can help...

ON THE CD

System 7.5.3 rev 2 and 7.5.5 updaters – see **Resources** folder

Have you read about Apple's Mac OS strategy in this issue's News (page 22) and our Mac OS feature (page 36)? The days of having a single floppy with your entire Mac OS on it are long gone. Now, you have a choice between BeOS, System 7.5, Mac OS 7.6 – and in a few months Rhapsody and Mac OS 8.0. All of them require 8Mb or more of RAM, take up at least 50Mb of disk space, offer an astounding number of features and enhancements to everyday computing and *still* you can expect your Mac to crash on a regular basis.

So if you have a problem (aside, that is, from any philosophical, metaphysical or medicinal – oh, and plumbing), drop us a note at MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW, or e-mail us at **macformat@futurenet.co.uk** with "Answers" in the subject line or fax us on 01225 446019. Sorry, but we can't answer technical questions personally, since we're *still* reading the white paper on Rhapsody. We've sent out for beer and pizza and it looks as if it's going to be another very long night...

A friend in need...

Backup System folders

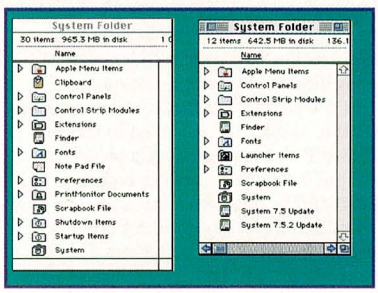
Q *I recently installed System 7.5.5 on my Performa 475 and onto a friend's Performa 630. The update caused my Mac to run like a snail, with files opening very slowly and strange things happening all over the place. In the end I re-installed System 7.5.3 from my backup disks and my Mac's running like a dream again. However, my friend did not make backup disks and the 7.5.5 Installer does not have a* ***Custom Remove*** *option.*

Can I use my backup disks to reinstate 7.5 on my friend's Performa 630? Or can I simply replace the 7.5.5 System File with my 7.5.3 System File? Is there an easier way to de-install System 7.5.5?

Andrew Fraser
Poole, Dorset

A Ah well now, this is a tricky one. Technically, you are the sole licensee of that particular copy of the System software installed on your Mac, and you can't legally give it to anyone else. From a practical point of view though, I doubt Apple would take you to court for doing so – provided your friend already has System 7.5. However, there's another fly in the ointment – after all this, it probably won't work.

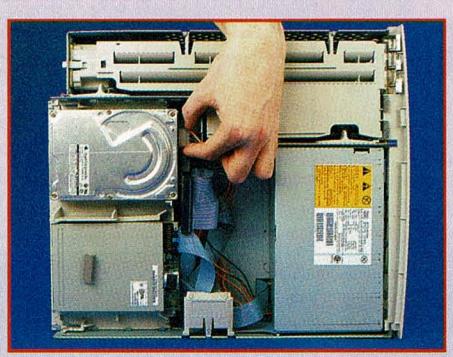
System software is complex stuff and no two Mac System Folders are the same. Quite apart from all the additional non-Apple Extensions, Control Panels and Preferences that you may have in your System Folder, Apple installers customise



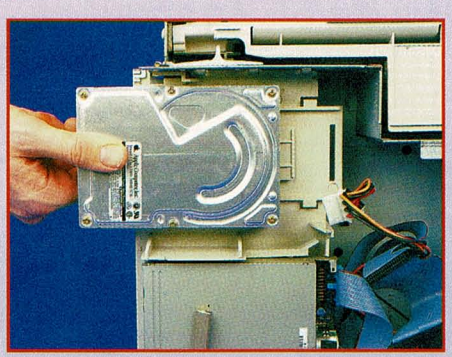
Not all System Folders are the same. The one on the left is Mac OS 7.6, and the one on the right is System 7.5.5. The two updater files in 7.5.5 were rolled into Mac OS 7.6. Replacing an updated System File with an older version will make your Mac unstable. See "A friend in need...".

Changing your hard drive

1 Switch off your Mac and disconnect the cables. Depending on the type of Mac you have, the casing will differ. Here, we're cracking open a PowerMac 7200/75. Two catches on the back of the Mac enable you to take the top off.



2 Find the hard drive. You can't miss it, it's about four inches wide and six inches long and can usually be found towards the front of the casing. The first thing you need to do is disconnect the drive's data and power connections.

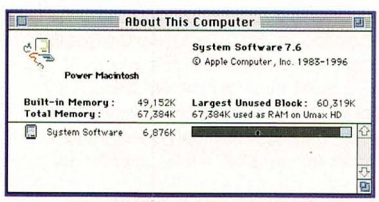


3 A catch at the front of the unit holds the drive in place. Again, the exact type may differ on your Mac – your dealer should be able to advise you on this. Snap the catch and slide the drive forward in its carriage and then out of the Mac.

the software they install, based on the model of Mac you are using. It's highly unlikely that the System software on your Mac will be interested in working on a machine released some three years after yours – same System version or not. And even if it does work, it's a recipe for disaster. It will make the 630 highly unstable and prone to crashes, glitches, and all manner of horrible conflicts. However, even this solution is preferable to simply copying an older System File across from your Mac.

Mixing and matching different System software components is like skydiving without a parachute – it tends to be a short-lived experience that ends in pain and a great deal of mess for someone else to clear up. The Installer does more than simply update the System File, it updates many of your Control Panels and Extensions to work with the updated System File. To replace the System File with an older version is to invite the rest of the System to crash regularly and take your files with it. It's a definite no-no.

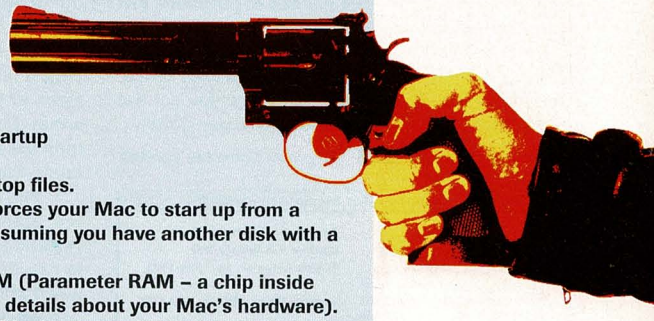
We're not quite clear why 7.5.5 is so slow on your Mac anyway. It shouldn't be any slower than System 7.5, and certainly no slower than 7.5.3. Install it again and make sure that the hard disk driver is updated. You can do this with the latest version of *Apple HD SC Setup*, which forms part of the System 7.5.5 update. If you must revert to System 7.5.3, the best way is to re-install the System software from your original System disks and then use the 7.5.3 updater on top of that. If you don't have – or didn't get – System disks and don't have a backup, this is going to make life very difficult. You have several options – either find a very understanding Apple dealer or friend with a Mac, or go out and buy System 7.6, which costs around £95 (or £70 if you buy before the end of April). For more details on buying System software, contact Claris on 0181 756 0101.



Is it worth using 7.5.3 and above? Using a PowerMac, yes, but on a 68K Mac, the new features might be outweighed by increased memory requirements and your Mac may slow down. See "A friend in need..."

Trouble-Shooting keystrokes

Having a few keystrokes up your sleeve is incredibly handy when you run into trouble, and it makes you look dead flash in front of all your mates in the office. Ahem... yes.



Startup keystrokes – hold down during Startup
[shift] Turns Extensions off.
[command] [option] Rebuilds the Desktop files.
[command] [option] [shift] [delete] Forces your Mac to start up from a disk other than the internal hard drive (assuming you have another disk with a System Folder on it).
[command] [option] P R Zaps the PRAM (Parameter RAM – a chip inside your Mac which stores the date, time and details about your Mac's hardware).
[command] [option] T V Switches your Mac's screen display from the monitor to a connected television set (Audio Visual Macs only).

Mac personification

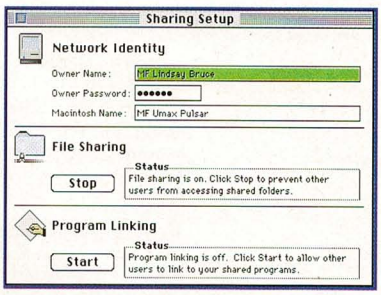
Changing the HD name

Q *I'm bored with the standard HD name for my Mac's hard disk and want to change it, but the Mac won't let me. I can change floppy disk names, but not the hard disk. Do I need to reformat it to do this?*
Mr B Smith
Bristol

A Nope, you don't have to reformat your hard disk. I suspect the problem here is that you have **File Sharing** turned on in the **Sharing Setup** Control Panel. With this turned on, any permanently mounted volumes will have their names locked to prevent confusion over a network. Needless to say, if you're not on a network, there's no point in having **File Sharing** turned on. Likewise, if you are on a network but don't want people to access files on your Mac, you can turn File Sharing off. Simply open the **File Sharing** Control Panel and click the **Stop** button. You will now be able to rename your hard disk. The reason floppy disks aren't affected by this is that Apple deemed it highly unlikely you'd want to share a floppy disk because they are so slow. Because of this omission, if you want to share the contents of a floppy on a network, you'll have to copy it to your hard drive first.

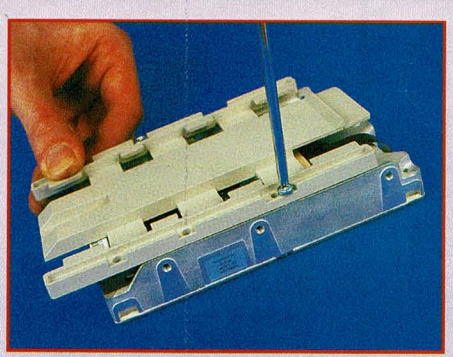
A tip if you're using an office network: if you do use file sharing, try to cut down the number of Macs in the office that have shared folders or disks. Macs with shared items send out messages across the network several times a second ➤

With File Sharing turned on, you can't change the name of any volume mounted on your Desktop (except for floppy disks). To change a disk's name, switch off File Sharing in the Sharing Setup Control Panel. Take a look at "Mac Personification".

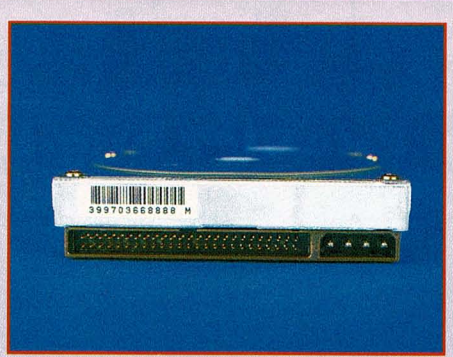

Sharing Setup
Network Identity
Owner Name: MF Lindsay Bruce
Owner Password: ••••••
Macintosh Name: MF Umax Pulsar
File Sharing
Stop
Status
File sharing is on. Click Stop to prevent other users from accessing shared folders.
Program Linking
Start
Status
Program linking is off. Click Start to allow other users to link to your shared programs.

Hard drive

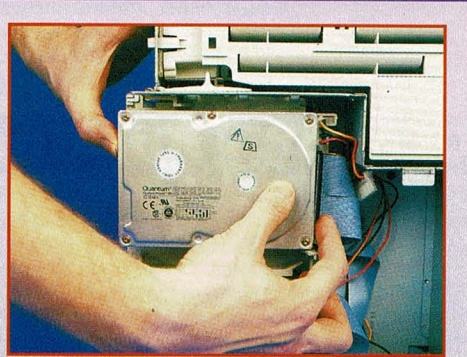
Thanks to Performance Direct for lending us the Quantum Fireball hard drive featured in the walkthrough below. You can contact them on 01784 477477.



4 You'll need a crosshead screwdriver to unscrew the drive carriage from the old drive and to attach it to the new one. If you don't do this, the new drive will rattle about inside your Mac's casing – not a good idea!



5 The drive connections – a long SCSI connector terminal, and a short power socket, so you can't get them mixed up. Most internal hard drives come preset at SCSI identity "0", so you don't need to worry about setting this up.



6 Slide the new drive into the expansion bay and plug it in. Start up from a floppy or CD, and your Mac will ask you if want to format the drive. Click OK and it will appear on the Desktop. Voila! It really is as simple as that.

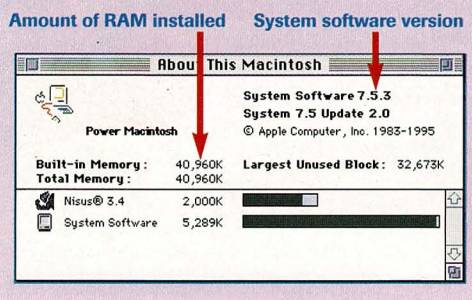
The do-it-yourself problem-solving guide...

One of the most common causes of problems on your Mac is Extensions or Control Panels clashing in your System Folder. It's easy to check if this is the case. Restart your Mac and hold down the [shift] key. Release the key when you get the message, "Welcome to Macintosh. Extensions off." If everything now works, then the problem is likely to be an Extensions conflict.

The only way to work out which item is the culprit is by trial and error. Remove a few Extensions or Control Panels, then restart your Mac, without holding down [shift]. Keep on doing this until the problem no longer occurs and you've found the offending software.

If this doesn't work, try rebuilding your Desktop. Start up your Mac holding [command] and [option]. You'll get a message asking if you want to rebuild the Desktop. Click OK, wait for it to finish and see if this solves your problem.

If you're still stuck, use the form on page 73 to write to us. We'll need to know a few facts about your Mac, so when you're in the Finder, select About This Macintosh from the Apple Menu – the crucial things to note are shown at left.



saying "I'm here!" to the rest of the computers on the network. The more Macs doing this, the busier the network becomes, and the slower copying files from one machine to another will be.

Actua RAM (again!)

RAM requirements

Q *After reading your excellent review of* Actua Soccer, *I promptly decided to buy a copy. After all, the review states that 8Mb of RAM is enough, and my Mac meets all the other requirements. When it arrived, I found that it needed 12Mb of RAM to run. When I try to install the game, I get a dialogue box saying, "The software to be installed requires 12Mb of total machine memory (RAM), which this computer does not have." I have tried everything, but to no avail. People from the Gremlin helpline keep promising they will ring me back, but nobody does.*

Paul Baruffati
Glasgow

A In a nutshell, you haven't got enough memory. *Actua Soccer* seems to need 8Mb of *free* memory. In other words, after you start up your Mac, and it's loaded up the System, it needs 8Mb left over. In practice, this means your Mac needs at least12Mb, so that there's enough memory to load the System and leave 8Mb free. Unfortunately, *Actua Soccer* isn't likely to work very well with Virtual Memory or *RAM Doubler*, so the only way around this problem is to buy some more memory. An extra 8Mb SIMM would only set you back about £30 (check the adverts in this issue for current prices), and the additional memory would be useful for other memory-hungry programs, too.

...and more of the same

Dodgy hard disk

Q *I have a PowerMac 6100/60 with 32Mb of RAM and System 7.5. Recently, I've been experiencing a lot of crashes. On restarting the Mac, I get the sad Mac screen. Booting up from a floppy, I then run* Disk First Aid *and it reports that there is a problem with the hard drive ("Invalid sibling link") but that this cannot be repaired. The hard disk then reappears on the Desktop and everything seems fine.*

This problem occurs at least once a week. I also have a printing problem. When Background Printing is switched on, my Mac gives me a series of error messages and then it fails to print anything out.

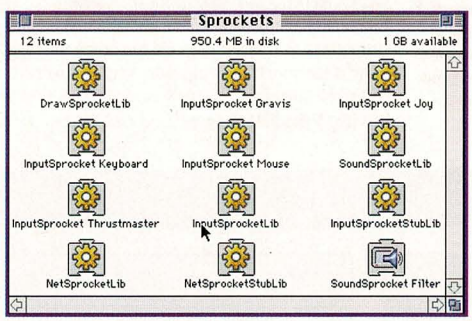
Joel Conroy,
Dundrum, Dublin

A These problems are probably related. There are two possibilities here, the first being that your System Folder is corrupted and needs replacing. This would explain the printing errors you're getting. Background Printing is handled by an application called PrintMonitor, which hides in the **Extensions** folder inside your System Folder. The other possibility is that your hard drive is about to die. As disks wear out, errors become more frequent and you may have problems starting up. We don't want to worry you, but this is one possibility. In either case, you should reformat your drive to get rid of the errors that *Disk First Aid* has identified but can't fix.

The very first thing you should do is back up your hard disk to either an external drive or floppy disks (see MacAnswers in MACFORMAT 49 for tips on how to do this). Then start up from your Disk Tools floppy disk that came with your Mac and perform a low-level format of your internal hard drive. You can do this with either *Apple HD SC Setup* or *Drive Setup*, one of which you'll find on your Disk Tools floppy. If you are using a Performa 630, Performa 630 DOS Compatible, Quadra 630, PowerBook 150, PowerBook 190, or any Mac based on a PowerPC processor, you should use *Drive Setup* to reformat your disk. If your Mac isn't one of these, use *Apple HD SC Setup*. To perform a low-level format in *Drive Setup*, choose **Initialisation Options** from the **Functions** menu and click on the **Low-Level** format and **Zero All Data** check boxes. This will perform a byte-by-byte format on your hard drive. It does take quite a while (usually over

System 7.6

The UK version of System 7.6 is out (see our review on page 44), but if you own a PowerMac 4400 or a Motorola Mac clone, you'll have to wait. At present 7.6 does not support the Tanzania motherboard these machines are based on. An enabler for running 7.6 on these Macs is on its way.



Apple's Game Sprockets are Libraries (like Extensions) that make it possible for games like *Actua Soccer* to run faster, be more compatible, and be produced in substantially less time. The downside of this is their increased RAM requirement. See "*Actua* RAM (again!)".

CFM-68K Runtime Enabler bug fix

Apple has released an updated version of the CFM-68K Runtime Enabler Extension for 68K-based (that is, non-PowerMac) Macs. CFM stands for Code Fragment Manager, a software component originally developed for PowerMacs as part of Apple's shared Library technology – a type of Extension that loads only when needed by the System or an application. The CFM-68K Runtime Enabler Extension enables 68K-based Macs to use certain shared libraries. It enables them to run *OpenDoc*, the LaserWriter 8.4 Extension, Cyberdog, and Microsoft's *Internet Explorer 3.0*. Apple discovered a serious bug in the Extension in November, and advised all users to remove CFM-68K from their System (it resides in the Extensions folder). The nature of the bug meant that under certain conditions the Mac would become unstable and crash frequently, with the potential risk of losing data.

Apple has now fixed this bug in version 4.0 of the Extension and we have put it on this issue's Cover CD. If you have a 68K-based Mac (non-PowerMac) and are running System 7.1 or above – including Mac OS 7.6 – you should install the CFM-68K Runtime Enabler Extension in your Extensions folder within the System Folder, and the Object-SupportLib 1.2 file loose within your System Folder. If you have older versions of these files, remove and delete them before installing the new ones. PowerMacs don't use the CFM-68K Runtime Enabler Extension. If you own a PowerMac and have this installed, remove it.

an hour, depending on the size of the disk) to run, but it is the safest option for a suspect hard drive. Once the disk is reformatted, reinstall your System software from your System disk(s) and then reinstate your files and documents from your hard drive backup – but not the original System Folder. Drag any non-Apple Extensions, Control Panels, fonts, and Preferences from your old System Folder to the new one.

If you're still having problems, then it looks like the disk may be about to bite the dust. Your only option now is to replace it. You can buy replacement drives from most Mac resellers and Apple dealers. Bear in mind that nobody makes hard drives smaller than 1Gb these days, and even these are hard to come by, so be prepared to upgrade! A 2Gb drive (standard issue these days) will cost you in the region of £300 – not cheap, but much larger than the one you'll already have and quite a bit faster. You can install an internal hard drive yourself, but don't try it unless you're familiar with the inside of your Mac. If you're confident with a screwdriver, take a look at our step-by-step guide on pages 70 and 71. Remember, though, to wear an anti-static wrist strap to minimise the risk of damage to your Mac caused by static.

Doom for the Mac...

PC games on Mac

Q *Can we play PC games on our Performa? We were told about a "DOS Emulator". What is this and where do we get one? Is this the most economical solution? If not, then what is?*

Mr & Mrs D Wardley
Oakworth, West Yorkshire

A The PC is a very different computer from the Mac. They run different operating systems on different processors, and their file systems and hardware designs are, well, different. If you put a PC-formatted floppy disk into your Mac's drive, it will probably be able to read the disk, courtesy of a little piece of software called *PC Exchange*, which is supplied with Macs. However, if there is a program on the disk, the Mac will not be able to run it, because the instructions that make up the program are for the Intel processors used in PCs, rather than the Motorola processors used in Macs. In order to understand these instructions, the Mac needs a kind of translator program, called an emulator.

Software emulators are relatively cheap, but quite slow, because the translation process takes up processor power. Insignia's *SoftWindows 95* is a good quality software PC emulator which runs Windows 95 at a reasonable speed – although not as fast as an average PC. If you shop around, you should be able find it for around £200. Bear in mind, though, that you will probably need at least 16Mb of memory and 100Mb of free hard disk space to do anything useful. The alternative is to buy a hardware emulator. This actually uses a 486 or Pentium processor to handle the PC software. It's much faster than a software emulator, running at about the same speed as an average PC, but it is much more expensive – prices start at around £500. Even worse, I can't find one that will work with your Performa 630, although I seem to recall that Apple used to make one. Unless you're willing to spend a considerable amount to get frankly average performance, I'd recommend that you just hold fire. Many PC games are ported to the Mac, although you may have to wait a while for it to happen. Exercise your patience and hang around for the the Mac version – this is the cheapest, fastest, and most elegant option. **MF**

Games like *Doom* come out on the PC long before they appear on the Mac, but is it worth buying a PC compatibility card or even *SoftWindows* when waiting for the Mac version is much cheaper?

Playing with PCs

Really *really* want to run PC applications on your Mac? Then see our PC emulation options group test in MACFORMAT 46. If you missed that issue, turn to page 144 for details of our back issues or fax-back services.

Ask MacAnswers...

If you send in a question for the MACFORMAT experts to solve, please fill in and include this form (or a copy of it). And please make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW; or fax it to us on 01225 446019.

Name .....

Address .....

.....

.....

.....

.....

Your Mac
(For example, Performa 475, 7600/120, PowerBook 5300):

.....

System version
(see **About This Macintosh** screenshot on page 72): .....

Amount of RAM
(see **About This Macintosh** screenshot on page 72): .....

Are you using Virtual Memory? ..... **YES/NO**
(This is accessed from the **Memory** Control Panel under System 7)

Do you have 32-bit addressing or Modern Memory Manager (PowerMacs only) turned on? ..... **YES/NO**
(This is accessed from the **Memory** Control Panel under System 7)

Details of any relevant hardware which could help us to answer your question:

.....

.....

Now, use this space to describe your problem or question. Please include as much relevant information as possible, and continue on a separate sheet if necessary.

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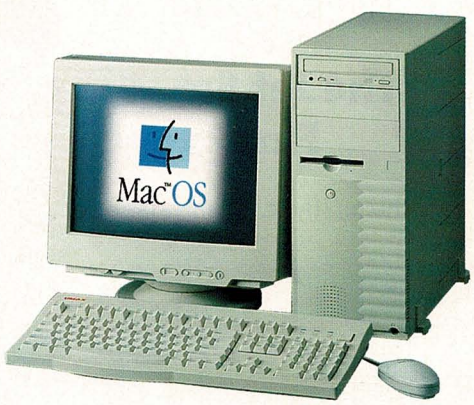

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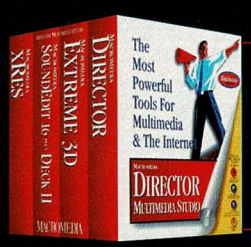

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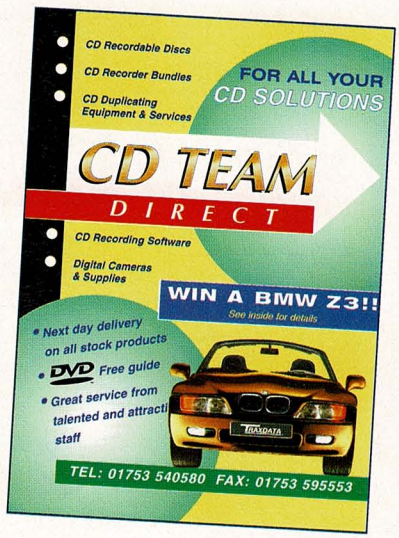

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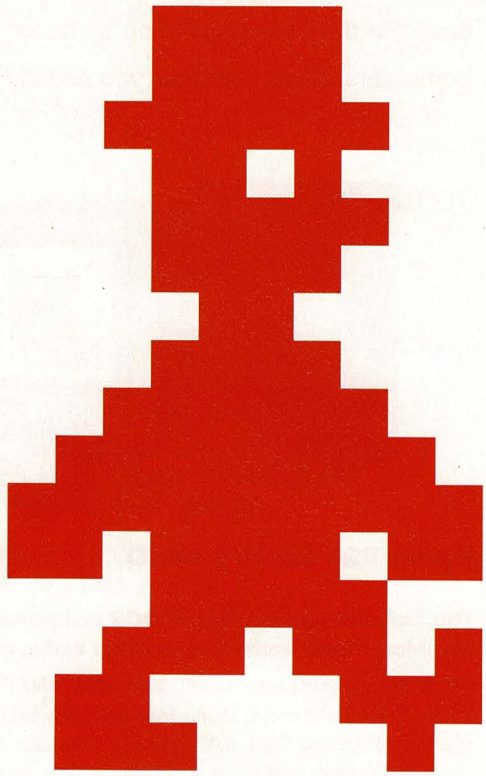

Site #58 in a monthly series of 250

The Jet Set Willy Fan Page

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Reviews

Check out our authoritative tests of products from hardware and graphics to multimedia and games, and discover just what's worthy of your cash...

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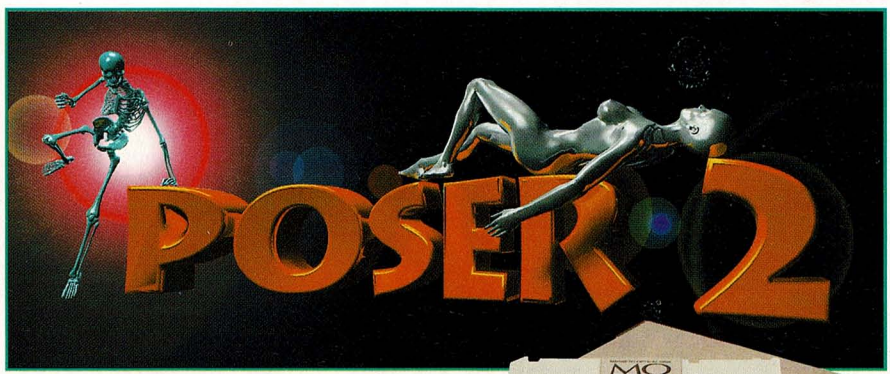
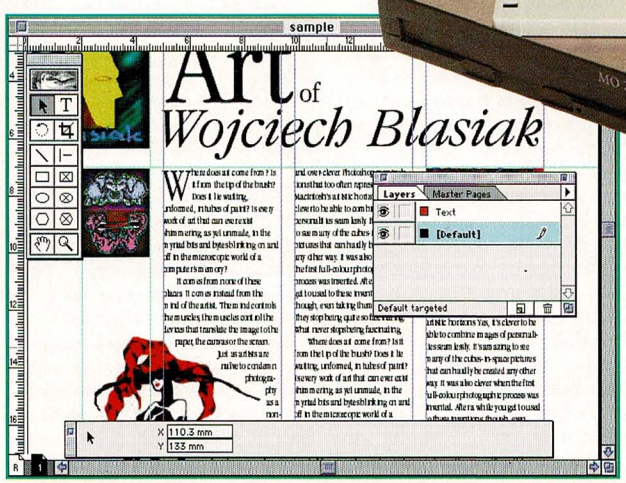
To celebrate our 50th issue, we bring you our Top 50 Shareware programs, including utilities, games, System enhancers, applications, and much more!



A 3D graphics program that enables you to design *full* human figures – check out *Poser 2* on page 86 to find out more...

You've got your PowerBook, but what about storage space? This new drive could be the solution you've been looking for – see page 80 for details.



Need a complete DTP package? This new version of *PageMaker* claims to be powerful, flexible and affordable. See how it shapes up on page 90.

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Price: RRP, inc VAT. **Contact:** The number to call for more information. **Web site:** Usually the maker's site, for more details. **RAM:** The minimum memory your Mac will need to have. Free RAM is the requirement excluding the System. **Processor:** Check the table on page 124 for your Mac.

PRICE	£516	ON SALE	Now	CONTACT	Nikon on 0800 230 220	WEB SITE	http://www.klt.co.jp/nikon/EID/Digital_Cameras/CP_100/index.html/
MAC	PowerBook with PC Card slot	REQUIRES	**System:** 7.5 • **HD space:** 10Mb • **Extras:** CD drive to use the optional graphics software				

Nikon Coolpix 100

"Crash, boom! What a picture! What a photograph!" This new digital camera from Nikon is tailor-made for images on the move. Jonathan Ferman charges up his PowerBook and starts snapping...

Nikon is no stranger to the digital camera market but the Coolpix 100 is different from anything the company has produced before. For a start, it's aimed squarely at anyone who uses a computer on the move – PowerBook owners, take note. The Coolpix 100 enables you to get images onto your Mac while you're out and about, so it's ideal if getting images quickly is your priority, whether you want to use them in newsletters or presentations or put them up on a Web site.

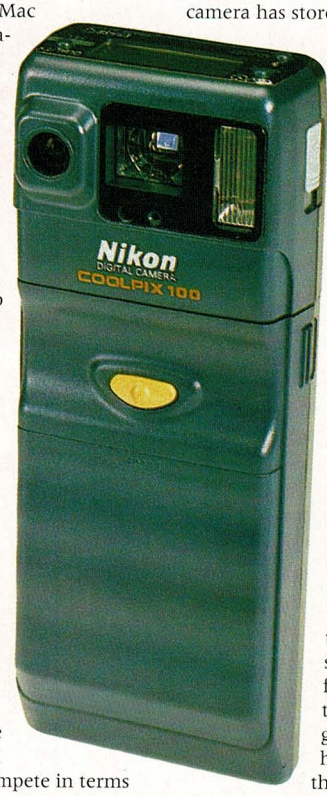
Definitely a good idea, but how does it work? Well, the images you take are stored on a PC Card, a type of expansion which has become standard for notebook computers because it's so compact (about the size of a credit card). PC cards are typically used for modems, Ethernet networking and even hard disk drives.

The Coolpix 100 is differentiated by the fact that its PC Card is built into the camera. So, when you want to download the pictures from the camera, you just remove the battery case and insert the PC Card (standard Type II) into one of the PC Card slots on your PowerBook. An icon appears on the Desktop and the PowerBook treats it as just another storage device. The images are saved as JPEG files (a common graphic file type). If you then want to view and edit the images, Nikon provides an *Easy Photo 1.5* CD from Storm Software. *Easy Photo* is a cross platform (Mac OS and Windows) application, and it has a number of useful features such as the ability to get rid of red eye, adjust brightness and contrast, and create a thumbnail index of all your photos, so you can see all the images you have at a glance.

The only possible drawback to this is that to use the *Easy Photo* software, you'll need a CD drive – and this is a relatively new feature for the PowerBook. If you don't have a CD drive for your PowerBook, you can still view and edit the images using any graphics application that can read JPEG files, such as *Photoshop* or *GraphicConverter*.

Nikon has cleverly positioned the Coolpix 100 as a computer peripheral rather than a camera. The company readily admits that for the moment at least, personal digital cameras cannot compete in terms of price and performance with traditional film-based models. Certainly the Coolpix 100 doesn't look like a camera, but it should appeal to mobile computer users because it is about the size and weight of a slim mobile phone. It will fit into your pocket and comes with a protective case, resembling a soft case for glasses.

While the Coolpix 100 is fairly easy to use, we did encounter a number of problems with it – perhaps the most important being that it's not always easy to tell when you've taken a photograph. Unlike conventional cameras and many digital cameras where you hear a clicking sound after you have taken the shot, the Coolpix 100 is totally silent. The only indication that you have taken a photograph is shown in the digital display at the top of the camera and from a tiny green light near the viewfinder. It is quite easy to take two photographs when you had originally planned on just one because you can't tell whether the camera has stored the previous image.



If you're into action photography, this camera won't be of much use. It can take over a second to store an image on the PC Card, so the camera is really intended for photographing static subjects. One final niggling problem is the lack of a tripod connector, but this omission is probably due to the fact that Nikon expects you to want to use the camera on the move. The shape of the camera means that you can't mount it upright without the aid of a support, so you'll want steady hands.

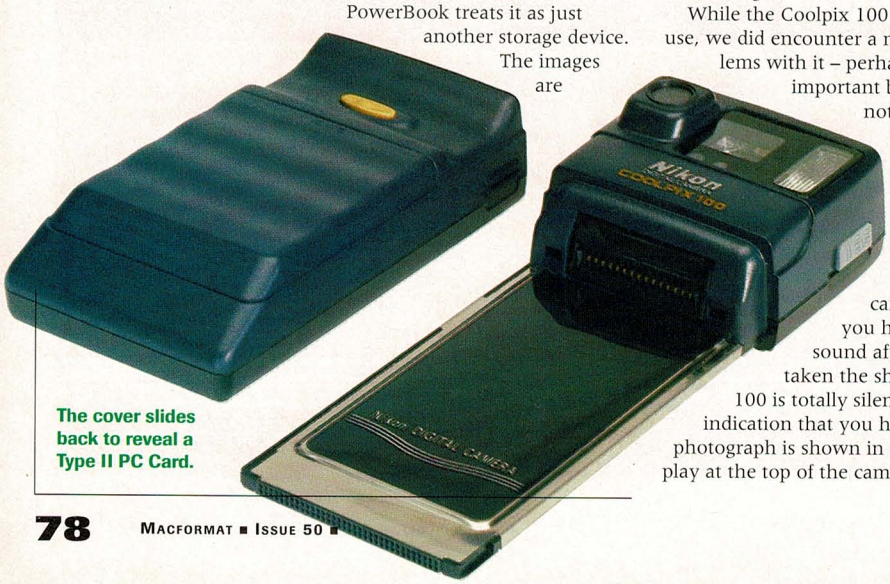
The overall quality of this camera is impressive and it has a powerful flash for its size, but the quality of photographs seemed to be heavily dependent on the amount of light available. Typically, bright light improves image quality substantially. However, the beauty of a digital camera such as the Coolpix 100 is that you can change the brightness and contrast of the image in a graphics program.

The camera has "normal" and "fine" image-quality settings – but surprisingly, there was not a huge difference between them. It can store a maximum of 21 fine quality images or 42 normal quality images. The normal setting is ideal for images to be put on the World Wide Web or sent via e-mail, as the file size is half that of the fine setting. The normal setting is also useful where image quality is not the prime concern.

As with all mobile hardware, a main concern is what it takes to make it work. In the case of the Coolpix 100 (which takes four ordinary AA alkaline batteries), the battery life was very impressive – the power level did not go below half way for the week and a half of rigorous testing that the camera was subjected to. Just like a PowerBook, this camera has a power management system, which puts the camera to sleep if it is not used for a

My card...

To use the Coolpix 100, you'll need a PowerBook with a PC Card (formerly known as PCMCIA) slot. Models which have a PC Card slot built-in include the 190, 5300, 1400 and 3400 series. A PC Card cage is an optional extra for the 500 series.



The cover slides back to reveal a Type II PC Card.

The Coolpix has two quality settings: normal and fine. The fine setting is quite impressive and picks up a lot of detail. Here you can see it in the cat's fur and around the edges of objects.

The normal setting looks almost as good, but look closely and you'll see the cat's fur is rather fuzzy and edges ill-defined.

certain period – and if this state of inactivity continues it switches itself off completely to conserve battery life. The beauty of having a PC Card integrated into the camera is that it is not using up the batteries when it is connected to your PowerBook and it should have a minimal effect on your PowerBook's battery life.

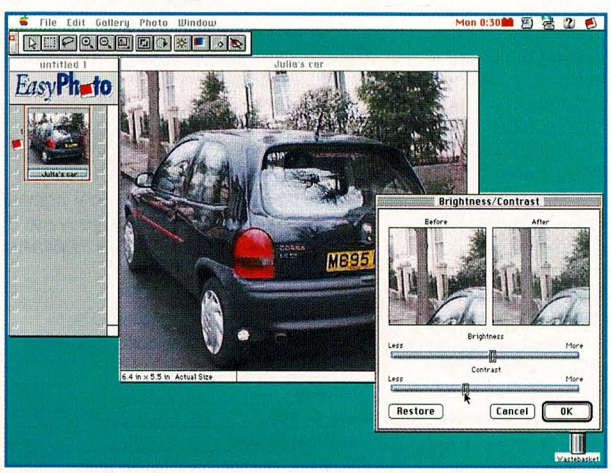
The documentation for the Coolpix 100 is excellent. It comprehensively takes you through the process of becoming familiar with the camera and its features. While the camera may be easy to use, a brisk flick through the manual is essential to uncover all of its features. The Coolpix 100 comes complete with case, strap and batteries, and the only thing that lets it down is its price. Considering the amount of competition in the digital camera world, the Coolpix is far too expensive. However, the street price is expected to go down to around £400 (inc VAT) and at that price this clever little camera is definitely worth considering. **MF**

Nikon Coolpix 100

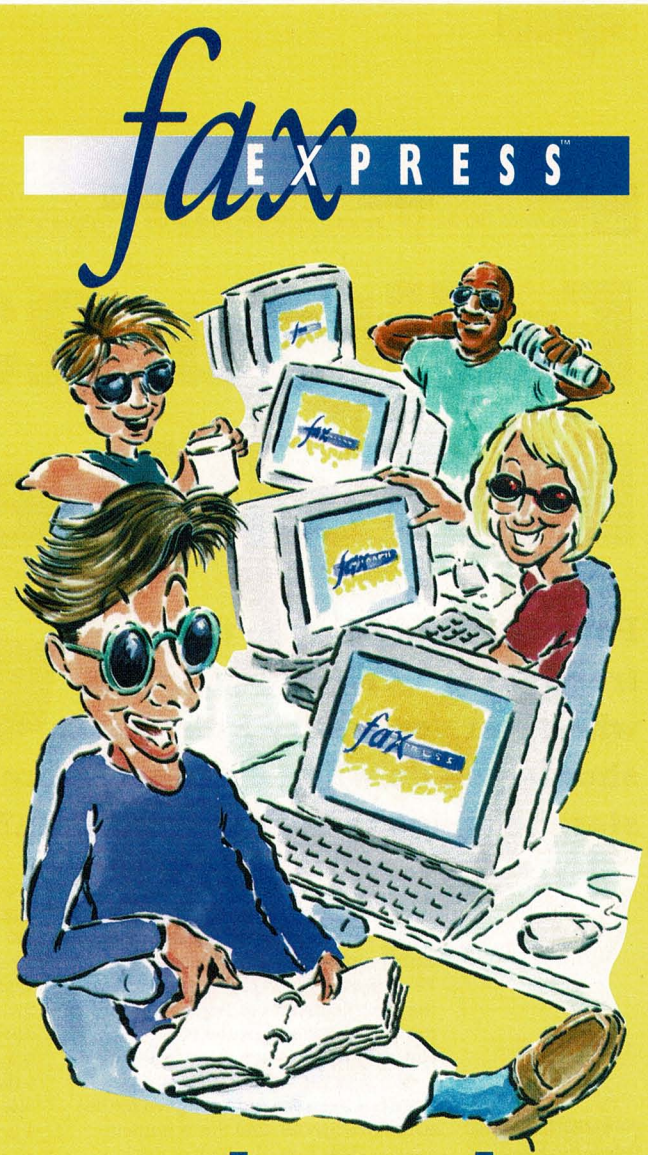
If you want a quick and simple way to get digital images on to a PowerBook this could be the solution for you – but shop around to get the best price.

Features	**83%**
Ease of use	**84%**
Documentation	**90%**
Value for money	**68%**

MF rating 80%



The bundled *EasyPhoto* software enables you to do basic colour correction of your snaps. Here we're adjusting the contrast.



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PRICE	£330	ON SALE	Now	CONTACT	Fujitsu on 0181 573 4444	WEB SITE	http://www.fujitsu.com/
MAC	PowerBook 190 and 5300 series (should also work in the PowerBook 3400 series)						

Fujitsu 230Mb MO drive

PowerBooks offer you the freedom to work wherever and whenever you want – but what should you do when you need more storage space to hold all your data?

Small, isn't it? The Fujitsu 230 and 640 MO drives fit into the drive bay in the side of your PowerBook, replacing the floppy drive.

In today's mobile world, the ability to transport machines and data quickly and easily is a paramount concern. If you own a PowerBook, then the good news is that this new release from Fujitsu has you in mind, and it could be the end of any storage problems you may be having.

The new 230Mb Magneto-Optical drive has been specially designed for use with PowerBooks, and this is immediately evident from the look of the box and the design of the drive (it comes in the textured black plastic synonymous with all new Apple PowerBook products). The drive is pocket-sized, and fits into the PowerBook's Expansion Bay, which you'll find on the right-hand side of the PowerBook 190s and 5300s. It should also work in the new PowerBook 3400 series – look out for the review in MACFORMAT soon.

Magneto-Optical (MO) is yet another storage medium (for details of how it works, see our removable storage group test in MACFORMAT 48). It uses cartridges which are about the same size as a 3.5-inch floppy disk, only slightly thicker. Inside the cartridge is a disk which looks just like a 3.5-inch CD-ROM, the difference being that MO cartridges are re-writable. MO cartridges are certainly a step up from the old-style floppy disks – the capacity of a 230Mb MO cartridge is approximately 160 times larger than that of a floppy disk.

Bundled with the drive is *Formatter One Pro*, which is a SCSI manager driver and utility. You'll find it easy to install too – it takes just one Extension to mount the drive. The *Formatter One Pro* application is useful because it gives you the option to mount or unmount the drive, test it and format it. The software is a significant improvement over *Anubis* – the driver software that Fujitsu had originally planned to use – because it has a better interface and is more reliable.

When the going gets tough

The drive is solid and well built, and supports most 128Mb and 230Mb MO cartridges. Fujitsu provides a 230Mb MO cartridge so you can get started straight away. It also comes with a protective case, making it easily portable – no fear of it being squashed! We found that the drive had no problems running inside the PowerBook – even when it was nudged and jolted. It also continued to work when we shook it inside the PowerBook while it played a QuickTime movie.

The main drawback of the drive is that it's quite noisy when copying. It is also heavy, much heavier than the floppy drive or VST's Expansion Bay hard drive – and this additional weight could significantly impair the mobility of your PowerBook. One redeeming feature, though, is that the PowerBook's battery life was not noticeably affected by the MO drive. This is quite surprising when you consider how quickly it spins the disc within the MO cartridge.

The 190 and 5300 PowerBooks enable floppy drives, hard drives and zip drives to be swapped without needing to shut-down the machine. This is one of the benefits of Expansion Bay devices and is termed "hot-swapable" – but curiously the MO manual makes no mention of the device being able to do this.

Another disappointment is that the MO drive specifications are not available in the manual. It would be useful to know the exact weight of the drive and the quoted speed. Fujitsu claims that the drive's playback performance is equivalent to that of a 10x speed CD-ROM drive, but the benchmark test we ran showed that this is something of an overstatement. Testing the drive in a PowerBook 5300ce, the average access time for the drive was 79.2 milliseconds (your hard drive is ten times faster). What's more, the "read" and "write" speeds were disappointing – 782K per second for the former, and 213K per second for the latter. An average eight-speed CD-ROM drive reads at 1Mb to 1.2Mb per second, so the drive is severely lacking in speed. A final grievance is that the MO drive doesn't work with the built-in Expansion Bay light, which is used by the floppy drive to show when the drive is in use – not the end of the world, but handy because you can't "hot-swap" drives while they're in use.

If you own a PowerBook and already use MO cartridges, then the Fujitsu 230Mb MO drive is worth considering. The MO cartridges are perfect for storing images, multimedia programs and presentations. It is difficult to recommend it as a total backup solution as no single cartridge can store the entire contents of your hard drive – but if you just want to back up smaller files on a regular basis, this Fujitsu drive should prove to be very useful. **JONATHAN FERMAN**

Fujitsu MO Drive

An excellent PowerBook storage space solution, but the speed was disappointing considering the price.

Features	**80%**
Ease of use	**75%**
Documentation	**72%**
Value for money	**68%**

MF rating 78%

What about desktop Macs?

Want to know more about magneto-optical drives for your desktop Mac – including how they work? We looked at 2.6Gb optical drives back in MACFORMAT 43, and the latest 640Mb and 650Mb drives in issue 48. Turn to page 144 to find out how to get your copy or use our fax-back service

You want MOre?

Fujitsu will replace the existing 230Mb MO drive with an updated version costing around £487 soon. The 640Mb MO will be a professional device for backing up huge volumes of data and archiving. It will be especially attractive for multimedia applications – using graphics, photographic, movie or sound files – which crave capacity.

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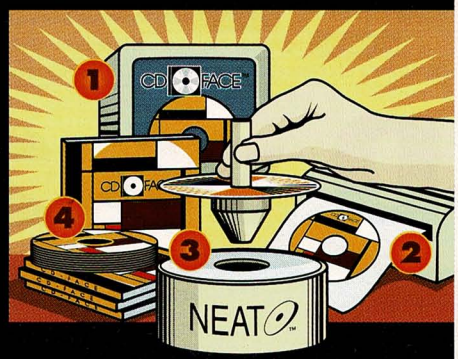

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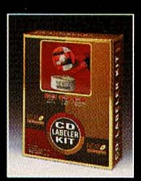

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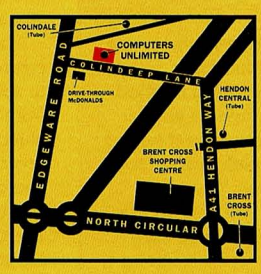

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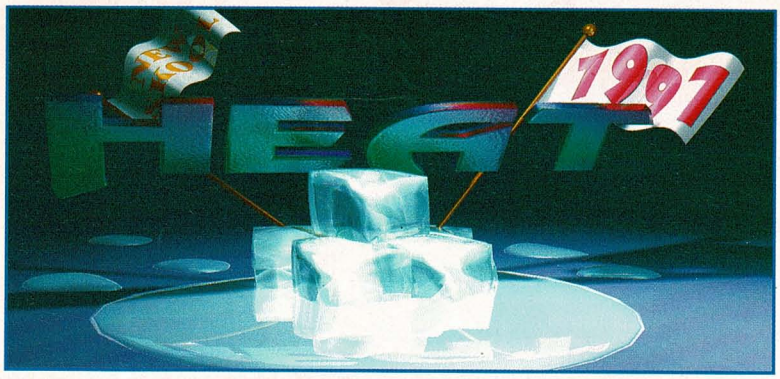
Cinema 4D v4.2.3

Super-fast 3D plus extensive animation facilities equals 4D... Marc Woods looks at a brand new 3D modelling suite for the Mac that has explosive potential.

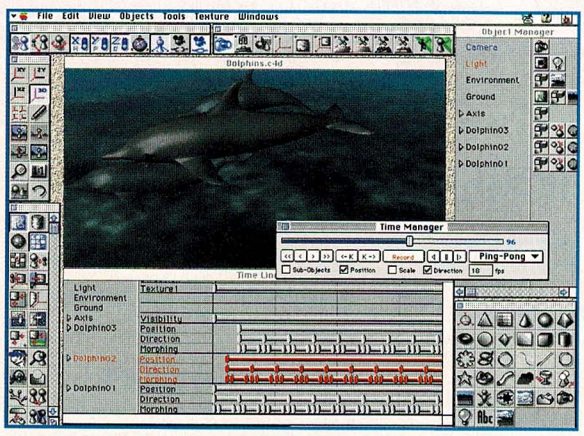


On a 6100 (but with 72Mb of RAM), this image took a little over two hours to produce.

MACFORMAT Classic

If the pessimists are right and the Mac is dying, how do you explain the steady stream of developers and software coming to the Mac OS? *Cinema 4D* is the latest in a long list of powerful 3D creation tools that are new to the Mac or have been seriously updated. It is hugely powerful, yet startlingly compact (the full install takes just 2.4Mb on your hard disk), and, best of all, blazingly fast – in our tests, ray-traced rendering proved about six times faster than *Strata StudioPro* using the same 3DMF model (neither program's native format).

Like *LightWave* and *PageStream*, two other prominent newcomers to the Mac, *Cinema 4D* has a long history on the Amiga. Although it's not as widely known or used in the UK and US as other 3D packages, thanks to its roots in Germany, it has become popular over the last five years. *Cinema 4D* is a complete 3D modelling suite, with separate modules to handle the distinct steps involved in 3D (see the "3D in a nutshell" box), each with its own window and menus in the menu bar across the top of the screen: object construction, camera positioning and lighting, and rendering to create the finished image.



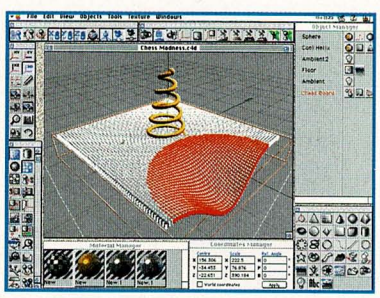
The animation system in *Cinema* includes **Morph Objects**, which is particularly good for creating realistic organic movement.

You view your work in the **Editor** window, and call on the various modules or "managers" as you need them. For the 3D modelling part, these are the Object Manager, Material Manager, Structure Manager and Coordinates Manager. As you activate one of these, the menu bar changes to give you access to that module's functions.

You use the Object Manager to organise and group objects, and to add effects, such as textures, to objects. As you create objects and name them, their names appear in the list. You can then group them together (by dragging and dropping or using the Group command), alter properties by clicking on the appropriate icon by their names, create root objects, link them, and much more. Relationships are displayed using a "nesting" structure like the Finder's list view, complete with little triangles you can toggle to display or hide the sub-levels. The Object Manager is a very important part of *Cinema* to understand and can be of enormous use in almost all modelling and animation situations.

The Material Manager is where you create, edit and organise your textures – to apply them, you simply drag them from here to the Object Manager or onto objects themselves. *Cinema* comes with several hundred textures on the CD, or you can import any pictures of any size and use them without any slowdown. The Coordinates Manager, meanwhile, is for precise positioning of objects, while the Structure Manager lists all the points and/or edges within an object, complete with their coordinates. The only everyday use for this would be if you wanted to separate a section of an object for some other purpose.

There is also an embarrassment of floating palettes – one each for actions, objects, views, textures, edit tools, and options – all with typically unhelpful icons that are likely to confuse you (especially if you're new to this) rather than clarify things. However, every icon has its own delay-sensitive pop-up label, so if you can stand a bit of a wait you'll get a hint as to its function (though it may be only a word), and once you've learned all you need to know, you can then disable the facility within the preferences. What's more, not only can you resize and reposition all the program's palettes, but there's even a Palette Manager to construct new ones, add buttons and rename them.



Using *Cinema's* **Magnet tool, you can deform objects in real time.**

With the whole package contained within one application and the enormous functionality of *Cinema*, it can be awkward at times; even for those with a lot of experience, there is a lot to learn about this package. With the quickstart and reference manuals by your side, though, you shouldn't have any trouble – the manuals even include an "FAQ" section.

More importantly, one aspect that makes *Cinema* so effective is the fact that

Jargon busters

Anti-aliasing: Adding an intermediate colour at the edges of an object to make the edges appear smoother.
Gouraud and Phong shading: Types of rendering method – Gouraud is a type of shading that makes objects appear rounder and smoother; Phong adds reflectivity and so on.
Splines: Mathematically-defined lines, which can be reshaped or curved, often using little handles. "N-sided splines" are multi-sided polygons where you can set the number of sides, and because they're splines, you can even have one side curved, say, where others are straight.

it just doesn't seem to crash. In the four months we have been testing the program, from early beta to the final release, the only times it ever crashed were because of external interference like corrupted PICT files and System problems. *Cinema 4D* is one of the most stable programs we've ever seen.

At work

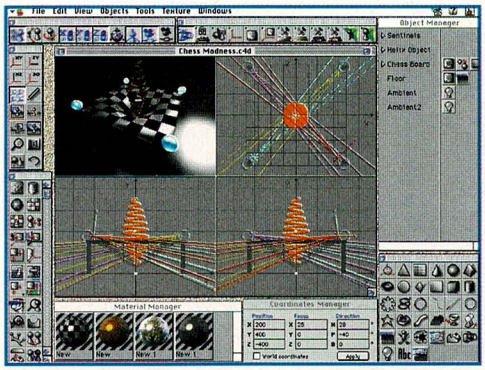
When you're working, the **Editor** window can be used either as a single-view environment which you switch between left, top, front and 3D views, or a four-way split view where you can drag the separators to enlarge or decrease specific views. This support for both working systems means you can work the way that suits you.

Everything happens in real time within *Cinema*, which is one of its most impressive features. Rather than using Apple's QuickDraw 3D system for the screen rendering, *Cinema* uses its own engine, which is quicker! The drawback is that it doesn't support cards such as Apple's QuickDraw 3D Accelerator Card (but it does support QuickDraw 3D and related peripherals in a separate window, although you can't work within it).

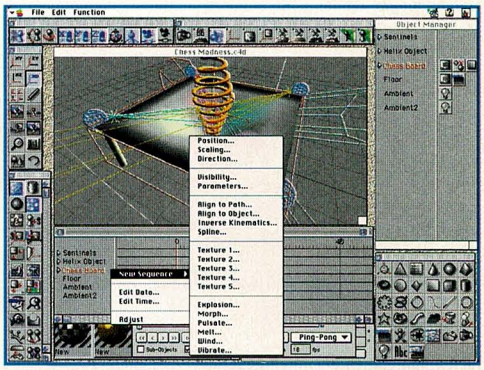
While working on your models in the main **Editor** window, you can move about the scene in real-time Gouraud-shaded mode to visualise more effectively the position and lighting effects on your objects. As you increase the number of polygons within a scene, you'll find that the **Editor** kicks back to other view types as it is no longer able to maintain real-time redraw. On a PowerMac 8500/180, for example, the program starts kicking back at about 32,000 polygons at 300ms delay, depending on the size of window – 550 x 400 in this case. To most animators this will be good news, as keeping the polygon count down is always a priority.

Constructing objects

When constructing objects from scratch within *Cinema*, you are confronted by a huge array of options (all of which are accessible in the **Editor** and **Object Manager** windows). Apart from the basic circle, rectangle and so on, there is an incredible number of base splines and a comprehensive spline editor-and-creator. The base splines include n-sided polygons, parallelograms, L, T and U profiles (the program creates an L, T or U shaped object, which you can then modify), stars, cogs and trapeziums, all with their own construction dialogues. Text handling at this point is limited in as much as the Text tool doesn't support PostScript fonts, although we are told this will be addressed in a future update.



You can choose which view to work in – either four-way split (as above) or as a single view.



A number of preset, but configurable, animation sequences are included in *Cinema*.

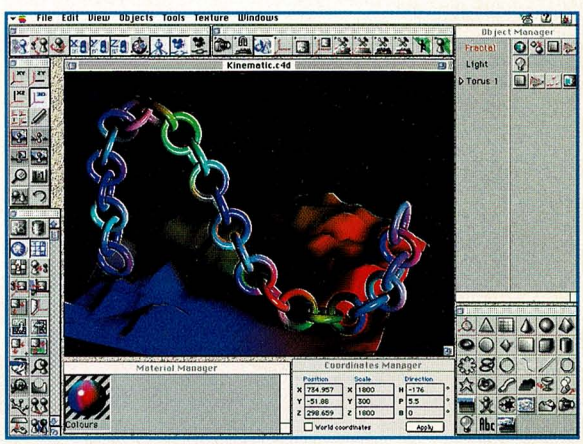
Once you have a spline to edit you can set it to one of nearly all of the spline types there are, including linear, cubic, Akima, B-spline and Hermite, and, of course, your spline can be open or closed. (Don't worry if you don't know what these are – the excellent manual will explain all you need to know.) If you have, say, a profile for a wine glass, you can make a morph, path or pipe object out of it, skin it, rotate it or extrude it (though some of these do need multiple splines). If you want to draw your own spline, simply create an empty spline axis and **[control]**-click the points down to create your shape.

The comprehensive 3D objects include spheres, pyramids, toruses, discs and planes, tetrahedrons, cubes and cylinders. The spheres can be mathematically perfect for unbelievably smooth rendering at any resolution (the only other 3D program that offers this is *FormZ)* or they can be patch-based – that is, geodesic domes made up of tiny facets. You also get some special objects, such as a floor reaching to the horizon onto which you can map a texture, an animation-ready mannequin, and a sky, for example.

Once you've created your object, you can reshape it accurately using the powerful point, triangle and quadrangle direct manipulation tools, among others. The magnet tool enables you to *pull out* a selection of points in a radius decreasing from the initial selection in a variety of ways, which you can select in **Preferences** – such as bell or linear.

There is a fully-featured Boolean modeller (used to add, subtract, cut and remove objects from one another), but this uses *Cinema's* odd way of selecting objects within modifiers. When you want a modifier to affect some objects, you have to type in the name of each of the objects separately. If there's only one item with a name starting with a given letter, this is not much of a problem – *Cinema* jumps to the nearest selection as soon as you start typing. Sometimes, though, you just have to type the whole name, mainly with duplicates (all of which gain a number to differentiate them). We have been told a likely enhancement will be the ability to drag and drop objects from the Object Manager to the object selection within the modifiers, but that isn't available yet. With practice, you'll get used to the system, but it's not very Mac-like.

Nor is another, potentially more serious, deviation from Apple's guidelines: normally, if you haven't saved your work when you choose **Quit** or ➤



Cinema has many functions, including fractal terrains, Inverse Kinematics, automatic post render, unsharp mask, and so on.

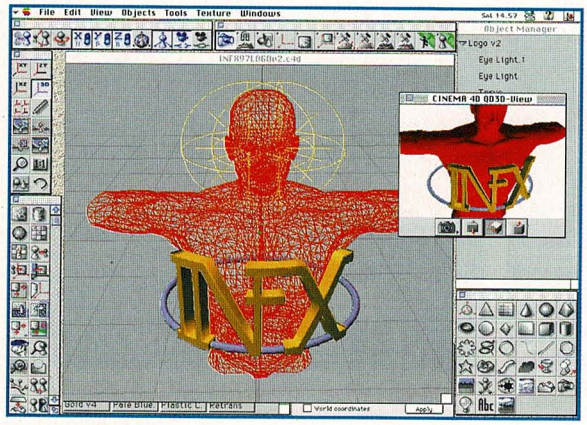
3D in a nutshell

3D modelling on your Mac is a four-step process. You first need to build objects (or a complete scene) by combining simple basic shapes such as cubes and spheres, or by applying certain operations such as "extruding" a 2D shape (like squeezing toothpaste through a tube).

This gives you complex wireframe "skeletons". You then add surface effects, including colour, shininess, transparency, reflectivity or even a tactile texture. Or you can use a bitmap image of woodgrain, marble or anything else and "wrap" this onto objects.

With the scene set, you then position your "camera" and lighting – anything from a single light source to a complete light rig. You can use diffused bulbs, distant suns, focused spotlights, etc, for different ambiences.

Finally, it's time to render the scene. This is time-consuming, because your Mac has to apply all the surface and lighting effects to the objects, calculate the position of reflections, shadows and so on, to create a 3D image. The more complex the scene, the longer the rendering takes – with complex objects and best-quality rendering it can take several hours to complete the process.



A separate window is available if you want to use QuickDraw 3D, and, of course, you can import and export 3DMF format.

Close Window, Save is the default choice in the dialogue box that pops up. Here the default is **Discard,** so if you're not careful you could lose all your precious work. This non-standard set-up should be changed urgently.

More modifiers

Among the other object-modifier tools, the "Subdivide" feature is especially useful for creating highly detailed objects from simple starts. Essentially it increases the number of patches (or facets) in an object exponentially by dividing each patch by the number specified. If you have a plane, for instance, that you created as a grid of 10 x 10 quadrangles and subdivide it by two, you end up with 20 x 20 = 400 quadrangles. (Be careful with this – go wrong and you'll bring the most powerful PowerMac to its knees!)

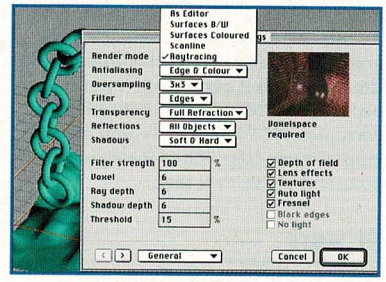
Cinema includes a great function called **Crumple,** similar to **Roughen** in *FreeHand* and *Illustrator,* which messes up the edges of 2D objects. This works best with subdivided and smoothed surfaces, essentially roughening an object but in three dimensions to degrees that you specify. For maths professors only, there's the Deform tool, which again alters the surface of objects but this time in a uniform manner based on mathematical formulae. The manual goes into great detail for this and you'll need more than a stiff drink or a degree to understand some of it.

Far simpler – and more useful – is the Wrap function, which takes your objects and wraps them around a virtual sphere or cylinder to give some great effects such as text wrapped around a sphere, deforming in three dimensions.

In addition to all the modifiers and deformers are the repair tools, which "clean up" or tidy your models for best results. These are equally useful and rare in any 3D package. The Optimise tool removes superfluous points, faces and edges. For instance, a *Poser 2* model imported as a 3DMF object was optimised from over 100,000 faces to around 40,000 with no loss of object quality. The Repair facility tests objects for uneven quadrangles and converts them to triangles where necessary. **Triangulate** converts all quadrangles to triangles. **Align Normals** evenly aligns the normal vectors of an object (to ensure smooth surfaces) and **Test Scene** tests the scene for any problems with objects or scene structure. The most useful function here is the Connect tool, which takes object groups and makes a solid geometry from it. For example, when *Cinema* creates a cylinder, the object is an open-ended cylinder with a cap at the top and bottom; Connect makes a volumetric object rather than group, making it easier to deform. This function is rather like an "add" Boolean operation, but quicker, and more "parts" can be selected at once.

Lights, camera, action!

When you're happy with your objects, the next step is to set up the lighting and "camera" angles. The camera object carries on the package's overall attention to detail with its fully variable lens and depth of field function. The depth of field settings enables *Cinema 4D* to calculate the amount of front and rear field blur you get when focusing on an object at a specific point within a scene. So, for example, if you look at an apple in the centre of a table and focus on it, the edges of the table and the rest of the room will be out of focus to differing degrees, depending on their distance from the apple itself.



The comprehensive selection of renderers is as good as any, and faster than most.

The lights are equally comprehensive, giving you complete control over light generation. The **Light Options** dialogue pops up when you create a light or when you double-click on its icon in the Object Manager, and within the dialogue are two areas, **General** and **Lens Effects.** The General area contains all the usual functions you'd expect, such as colour of light, type, definition and degradation, and also a feature that can give some beautiful results, **Visible Light.** This feature enables you to make your light source visible as a glowing point to the specified dimensions within your scene. The **Lens Flares** feature is just as comprehensive, every part being editable down to the colour of each halo! As with everything in *Cinema,* all the lighting and camera functions are animatable.

Cinema 4D boasts an impressive array of import and export options, plus total cross-platform compatibility. Picture formats supported include TIFF, IFF, JPEG, Targa, PICT and QuickTime movies. 2D and 3D formats supported include *Illustrator* up to v5.5, EPS, DXF (2D and 3D), 3DMF, all *LightWave* parts, Imagine and External Point Files.

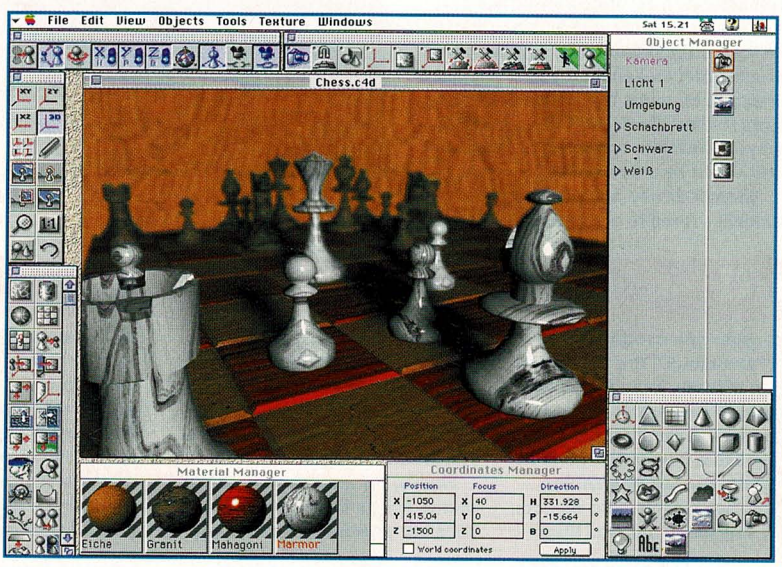
Texture tools

Since *Cinema* includes a full ray-tracer for final rendering, the texture generation is also fully featured. All the standard texture facilities are here, including colour, glow, transparency, reflection, environment, fog, bump, highlight and highlight colour. Genlocking is also included, which enables you to make areas of textures "non-existent". For instance, select the white in a black-and-white texture and you can make it transparent, like the "Punch" function in art package. This can be very handy for simple minus Boolean operations without creating complex objects. Every aspect of the texture can have its own external file for colour or effect.

The Material Manager works with external files in a similar way to the creation tools: having selected directories in the **Preferences** for your picture texture maps, you start typing the name of the texture and *Cinema* will find the file and display it – handy if you know the names of all your files. Otherwise the **File** button gives you a standard "Open" dialogue. Every texture can have shadow enabled or disabled, which can consider-

Inverse Kinematics

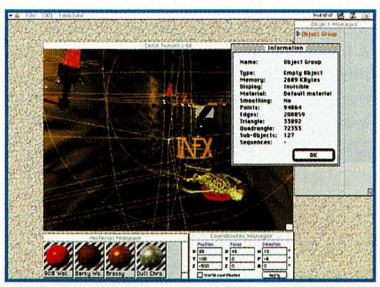
For more about Inverse Kinematics, take a look at our review of *Poser 2.0.1* on page 86.



When setting up a camera object to view your scene, you can set the depth of field to focus on a specific area of your image for a much more realistic feel to the final render.

ably reduce the processing time required for complex scenes where inter-object shadows aren't necessary but shadows on the floor are, to give depth.

The final output from *Cinema* is the most impressive we've seen from a Mac 3D program, and, as mentioned, it's fast. Very fast. The included rendering options are true adaptive raytracing (slowest, but best quality, especially where there are reflections and transparency to render), scanline, wireframe (outlines only), flat, Phong and Gouraud shading. The raytracer is adaptive, meaning that any parts of the scene that do not require it, such as areas with no transparency or reflection, will be rendered with the blisteringly fast scanline renderer, reducing the overall production time. In practice, a scene with over 200,000 faces, a great deal of reflection and a little transparency at 2,500 x 2,000 pixels took just over two hours with a ray depth of eight and shadow depth of six on an 8500/180 with 96Mb of RAM. (In practical terms, it would take a 6100/66 roughly 12 hours for the same image, but that's still fast for what's involved.)



A lot of information is available, from a simple breakdown to the exact position of every point, edge and face within an object.

For more realistic rendering, the anti-aliasing feature gives you three options: "None", "Edges & Colour" and "Always". The last of these, naturally, takes a lot more processing time. Both anti-aliasing filters can be set up to 16 x 16 over-sampling – in other words, a very high level of anti-aliasing, to give some very time-consuming but superb results.

Cinema 4D doesn't support spooled rendering, meaning that everything must be done in memory. Unfortunately this means that it can require huge amounts of RAM to produce complex or heavily lit scenes. However, the developers say that Virtual Memory works fine and doesn't cause much speed degradation, if any. A minor niggle is that the **Editor** window doesn't show final image crop as set up in the render preferences. This can be annoying and give unexpected results, so be sure to do a preview to see how the scene will be cropped.

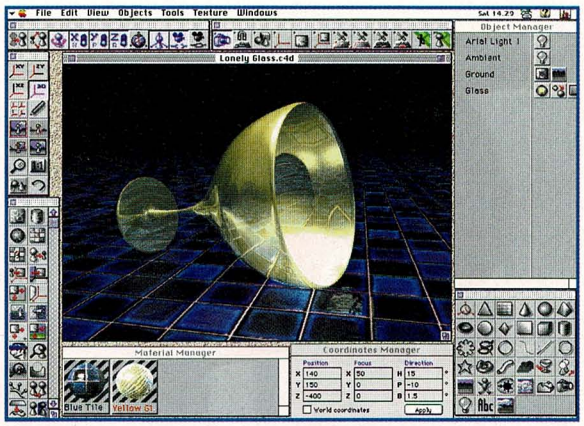
Comprehensive options for QuickTime VR output are also in the render settings. *Cinema* can produce full 3D panoramas without the QuickTime VR Authoring suite – not many packages can do this. (You'll need a QuickTime VR player to view the panorama, but this is widely available on the Internet.) You can also create 360° renders of objects for insertion into QuickTime VR movies.

Animation

Cinema 4D v4.2.3 really pulls ahead of the competition in its animation features – the "4D" in its name alludes to the fourth dimension, time. Organised into three separate windows and palettes, the animation facilities are controlled by the TimeLine, Time Control and Time Manager. The last of these is the overall control centre for *Cinema's* Keyframe animation system. It looks like the front of a VCR and works in a similar fashion. Select an object, create a key, move down the timeline to the desired position, move, rotate and scale the object (and so on), and create a second key. *Cinema* then interpolates between the key points, giving a smooth transition. You can also use it to play the animation in real time, and depending on the number of faces in the scene you can generally get a good frame rate in every display mode.

The TimeLine is used to control and edit animations within *Cinema*. The window displays the classic timeline and event marker view for each aspect of animation for each object – very comprehensive. The TimeLine palette also gives access to some great sequences such as explosions, wind, melting, morphing, pulsing and vibration, all of which are simple to configure and give professional results, when used correctly! You can even animate a camera to follow an object – select **Align to Object** from the **Sequence** menu, choose the object and – hey presto! – even if you move the camera or object to different positions, it automatically updates the path.

The Time Control Manager gives you precise control over the application of effects to objects, such as movement and scaling, through the manipulation of the animation spline paths for each function. Every little aspect of your scene can be animated, from the smallest movement to fantastic lighting effects, giving *Cinema* plenty of potential to create dazzling animations for use in any field of 3D design from Web pages to TV. The included animation facilities are: Inverse Kinematics, skeletal construction, acceleration and deceleration, different spatial and temporal interpolation methods, rotoscoping (using QuickTime movies as textures) and path constraint.



***Cinema's* work environment is clean, concise and configurable. You can save individual preferences for every scene, if you like...**

With all this power, superb final output, remarkable stability and amazing speed, *Cinema 4D* is one of the strongest contenders in the Mac 3D market. It has all the features of its closest rivals and more, though some of the latest professional-level functions are missing, such as particle animation and NURB splines. Although the program takes some getting used to, there is sound reasoning behind the way it is set up, and the excellent documentation makes it as easy to master as anything this complex could be. At a stroke, *Cinema 4D* has upped the stakes in the 3D game, and its hand is now the one to beat. **MF**

Cinema 4D v4.2.3

Offers power, speed and superb results, and is as stable as a healthy elephant. 3D functions that match any of its rivals, plus excellent animation features. Brilliant.

Features	**85%**
Ease of use	**85%**
Documentation	**95%**
Value for money	**90%**
MF rating	**93%**

Built for speed

***Cinema 4D's* modular approach isn't just skin deep – that's also the way it's made. It's not a million miles away from the "component software" we explored in our cover feature last issue. German company Maxon Computer developed *Cinema 4D* for the Mac and PC using the rendering "microkernel" from code written to run on 680x0-chip-based computers, like the Commodore Amiga and pre-PowerMac Macintoshes. This has resulted in one of the fastest 3D programs around. *Cinema 4D* has only 191K of machine-dependent programming and interface code, and the installed application takes just 2.4Mb on your hard disk.**

The construction of the program enabled the developers to build a multi-processor version returning about 375% speed gains in a four-processor machine. In tests it showed about five times the final output speed of *Strata StudioPro Blitz* and from 10 to 20 times that of *LightWave 3D* for the Mac, with no obvious difference in quality. The multi-processor version is available by request. A "double maths" version comes with the package, and is designed for building huge models that also incorporate fine details. An example is that of a fly being watched as it flies through a football stadium – the relative size difference between a section of the fly's eye and the stadium's overall size would be too great for most rendering algorithms, and anomalies would occur.

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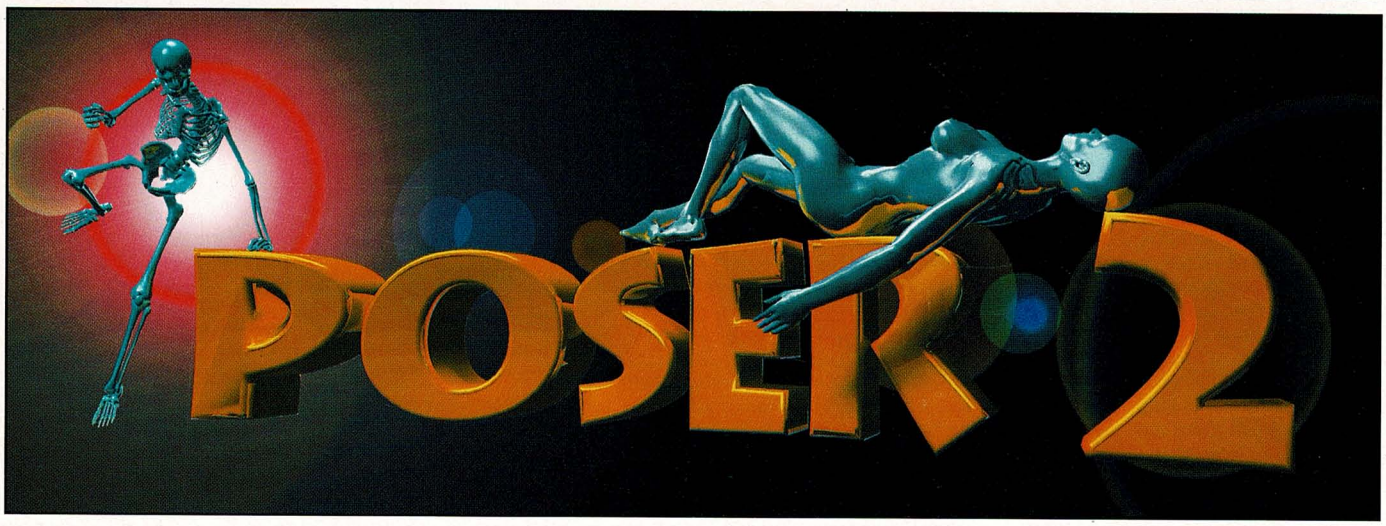
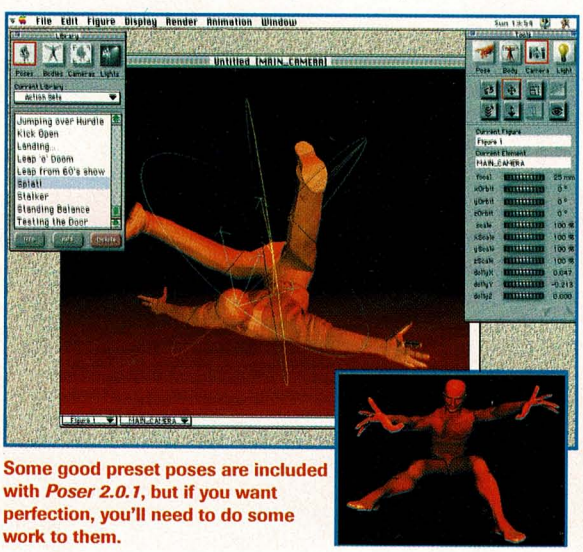


Fractal Design has updated its unique figure-creation software – now as well as being able to generate a human figure, your Mac can even add genitals... and clothing. Marc Woods assesses how *Poser 2* shapes up.

Throughout the centuries, the most memorable art has been based on the human figure. We don't admire the Mona Lisa just for Leonardo's brushwork, or the ceiling of the Sistine Chapel for Michelangelo's grasp of perspective. El Greco, Picasso, Dali, L S Lowry and many others might not be noted for photo-realism, but their most admired works at least start with human forms.

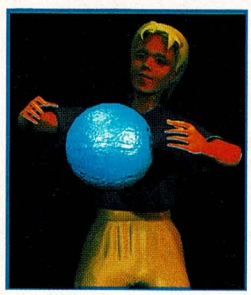
For today's Mac-based artist, the human figure is often just as fundamental.



Some good preset poses are included with *Poser 2.0.1*, but if you want perfection, you'll need to do some work to them.

Creating a realistic body is no easier than it was before computers came along, and it gets even tougher if you want your figure 3D rendered, texture-mapped and re-poseable. Fractal Design saw the need for a piece of software that could do all that for you – or at the least generate a model you could do further work on – and produced the unique *Poser*. Leonardo, and Lowry, would have been dumbfounded. If you jumped in your time-machine and went back 21 years, even Steve Jobs might have found it hard to believe. But time moves on, and now so has *Poser*...

The original concept has not changed. *Poser 2.0.1* is still a tool for the creation, manipulation and final output of virtual human figures. It still boasts a simple, functional interface and a price-tag to suit most pockets. As before, the main view window initially displays a wireframe male figure and a toolbar containing all the tools for manipulation, camera and lights, just as in almost any 3D program. When extended, this palette contains parameter dials for precise control of movement. A second palette, if you have room on your monitor (an 832 x 624 display is recommended), contains all the presets available for these functions. The only addition to the work environment in this version is the animation palette, typically Fractal in design, containing controls for the time-line/event-marker animation system, which will be familiar to anyone who has used an animation program before.



You can now add shadows to create more realistic final renders.

Goodies on hand

So, is it any good? Well this version, 2.0.1, is a great improvement over v1 and the initial release of v2. *Poser 2* has the ability to clothe (by texture mapping) your models, includes much improved model geometries (objects) and genitalia. Along with the improvements in the geometries are an increased number of models in both male and female, high and low-res forms. Included are naked, business-clothed and casual-clothed figures. *Poser 2* also has an asexual child form, either naked or casually clothed. The original artist's mannequin and detailed skeletal forms are included, too, and you can alter any to produce all the natural (and unnatural) human forms you like.

The textures in v2.0.1 are much better than those included with v1 – there are male and female business, casual, nude and muscle (with bump map). For those who want something a little more obscure, try the male and female blood patterns. Fractal Design realised that many people would want to create their own body textures, so included templates for all to be edited in *Painter*, *Photoshop*, *Graphic Converter* and the like. The renderer now supports shadows, which makes for far more realistic final renders – look at the young boy catching the ball, for example.

The 3D import and export options are also greatly improved: Wavefront OBJ, DXF, 3DMF and Detailer formats are available, although oddly not RayDream. Exporting your objects as 3DMF on the Mac seems to give the best results with most popular 3D packages, although some will only accept DXF.

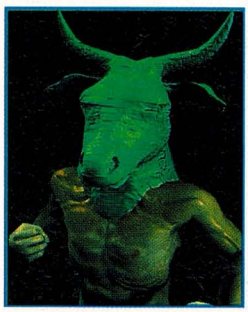
When exporting as 3DMF there's a check box for exporting all the body parts as separate objects, but we couldn't get it to work. For that matter, exporting the high-res models as single files took over 64Mb of application memory, which is very high, and produced files of a whopping 1.5Mb in size. That aside, the ability to export your posed model to your favourite 3D package is a godsend and, with the improved export options in

plug-in format, many more could easily become available.

The animation facilities are the best new addition to *Poser*. These include Inverse Kinematics (where linked body parts follow the movement of a leading part in a way that mimics nature – see the "Natural movement" box), and they are fully functional for all aspects of your model – the body and its pose, camera, lights and props. Anyone familiar with time-line/event-marker animation systems will be right at home. You simply create an event-marker, move to a new point on the time-line, create another, and then manipulate each aspect as you wish; the program interpolates between the event markers, giving you fluid motion. If you're not familiar with the principles, the manuals cover the functionality well, as all Fractal Design's manuals do.

The package includes quite a few props, which you can import into your compositions and use to enhance the characterisation of the figures (such as hair and glasses) or to interact with the figures (such as tools and toys). A separate CD is available in the US full of extra props – see the "Prop it up" box for details.

When you render in *Poser* it hogs all your processor time, preventing you from doing anything else.



You can use other 3D models as body parts if you like. Here's a man with a minotaur's head...

On the other hand

Even without the new additions, *Poser* has been very popular. You've almost certainly heard about it, read about it or used it. However, you may also have heard about its problems and limitations. It is all too easy to make mistakes within *Poser* that can result in some unrealistic twists and breaks in a model's surfaces and joins. The on-disc documentation acknowledges: "It is possible to force the figure into certain extreme poses where the shape of the form is distorted." But, it goes on, "This is usually only possible when rotating or moving a body element in an extreme manner and is most likely to happen to an element in an IK [Inverse Kinematics] chain."

So why does it happen with many of the preset poses and sample animations included on the *Poser* CD? Mistakes have been made with their construction that result in very undesirable effects.

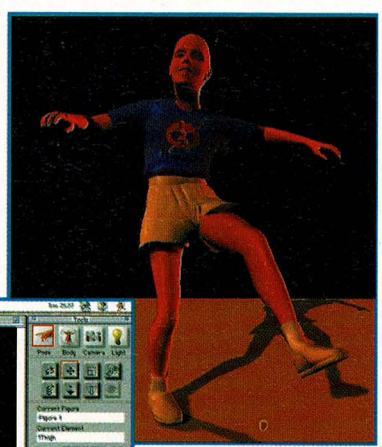
The answer is the key to evaluating – and using – *Poser*: you shouldn't expect it to produce a fully-finished figure, one that you can use as is, without further work in an image-editing program or perhaps a 3D package.

That said, though, with a little patience it is possible to correct the anomalies and produce some great results. To get the best out of *Poser*, use the parameter dials to make sure that, in general, no object (hand, foot, forearm, and so on) is rotated, twisted or bent more than 90°. In some cases we found that during movement back to a sensible position some very odd things would happen...

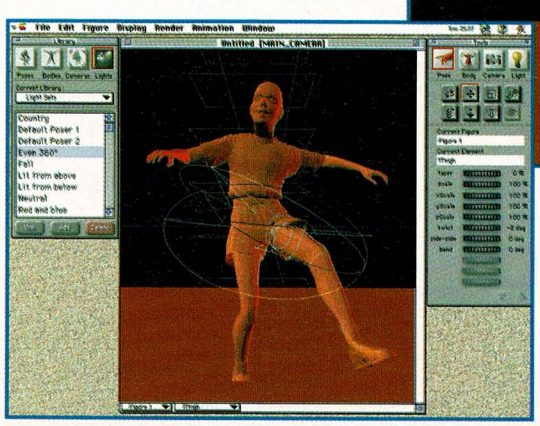
Most of the problems that occur are to do with the way that the program's Inverse Kinematics work. As a default IK is turned *off* for the arms and *on* for the legs. This way if you use the translation tool (the tool next to the rotate tool), you can modify the body's pose by grabbing the appropriate part of the body and moving it, so that the linked parts follow suit. In general, all movement in the arm originates from the shoulder then down, whereas movement in the leg originates from the foot then up. However, the Inverse Kinematics chains in this program don't work particularly well and you can end up with screwed up figures if, for example, you restrict the movement in the arms to be generated from the hands. *Poser's* Inverse Kinematics, and indeed the whole matter of posing your figures, call for careful thought. It's like posing one of those little wooden artist's mannequins – you have to apply some of your own understanding of how the body works to get it to look right. If you consider, though, that only the most advanced 3D modelling software gives you the ability to create forms and manipulate them in the way that you can with *Poser*, it starts to look far more impressive. How many programs boast Inverse Kinematics, bones and relational surface structure, all in one affordable and relatively easy-to-use package?

If you use *Poser 2.0.1* carefully and intelligently, it is capable of producing some dazzling results, even without the help of further retouching. If you look at what *Poser* does do rather than what can go wrong, you can see its potential value to any artist or design studio. It's especially useful if you lack the time or aptitude for creating figures, or if they are not your prime concern – say, if you're an architect and you want to put realistic human figures into a grand virtual model of your new building design. What would you rather do: use the old method and superimpose 2D figures onto the final 2D images of your construction, or import *Poser* figures in appropriate poses into your scene and then have realistic shadows, perspectives and so on, ready made for you? It's no contest.

The bug-fixed *Poser 2.0.1* is an impressive and useful product if you consider that it is the only one of its kind and that it isn't too expensive. If you also bear in mind its limitations and control the way you work with it, it's capable of some great results. **MF**



Above: There's no doubting *Poser's* capabilities – just be prepared to put the hours in tweaking the figures.

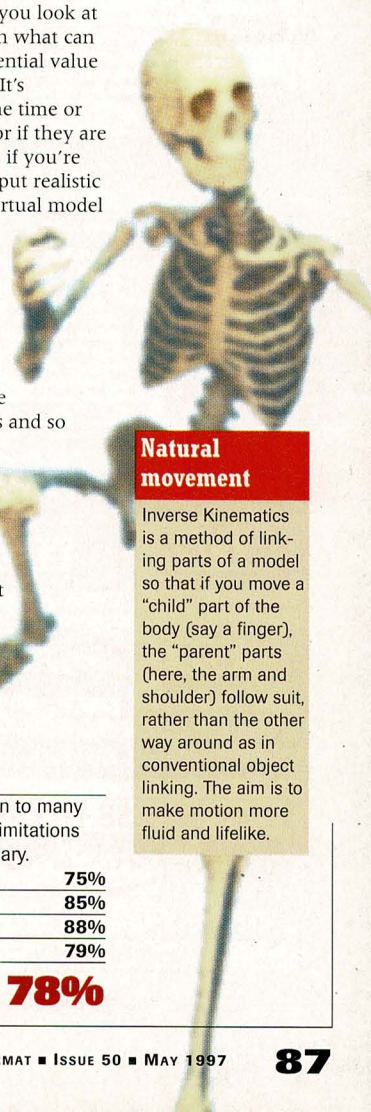


Left: There are many aids to help you with your composition – some are of more use than others.

Prop it up

A separate CD is available in the US, which is full of props for use with *Poser* and other 3D modelling packages. It's called *Fractal Design Parts & Props*, and contains 135 useful objects from the home to business. All are good but not in editable form, only Wavefront Objects and 3DMF format solid-faceted objects. A sampler of the *Parts & Props* CD is included with *Poser* on a floppy disk, and we have been told it will definitely be coming to the UK. We'll let you know pricing and availability details as soon as we have them.

Here's another preset figure – a casually clothed, average man.



Natural movement

Inverse Kinematics is a method of linking parts of a model so that if you move a "child" part of the body (say a finger), the "parent" parts (here, the arm and shoulder) follow suit, rather than the other way around as in conventional object linking. The aim is to make motion more fluid and lifelike.

Poser 2.0.1

Undoubtedly the unique solution to many design problems, but its many limitations prevent it from being extraordinary.

Features	**75%**
Ease of use	**85%**
Documentation	**88%**
Value for money	**79%**
MF rating	**78%**

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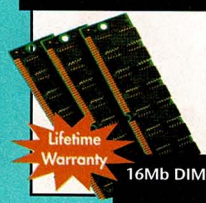

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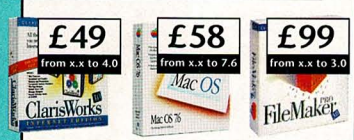

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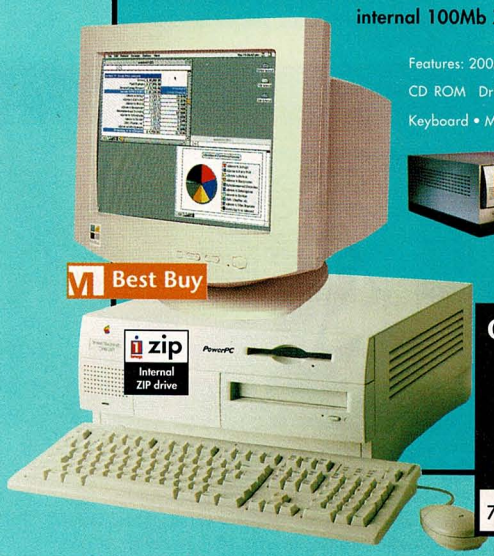

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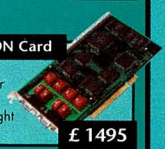

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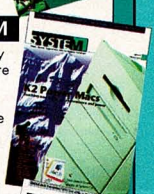

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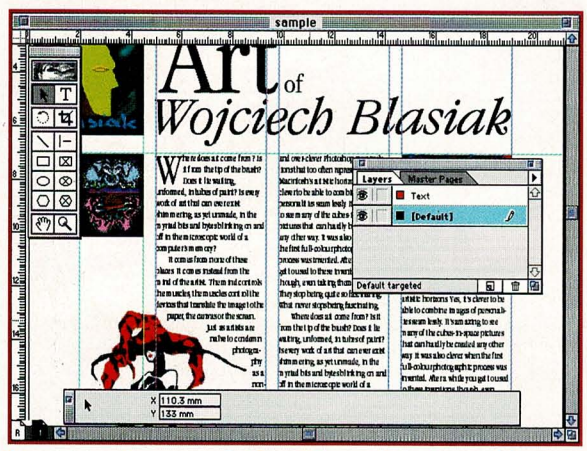
PageMaker 6.5

Another version of *PageMaker*? Will this one grind arch-rival *QuarkXPress* into the dust, or is Adobe condemned to playing catch-up? Rod Lawton sizes up the challenge.



Now you see it, now you don't... v6.5 uses *Photoshop-style* layers, so you can separate text and graphics, for example. Toggling the "eye" icon on and off makes each layer visible or invisible.

Adobe doesn't want just a slice of the DTP market, it wants all of it, and the one thing standing in its way is *QuarkXPress*. Adobe has already cornered the photo manipulation market with *Photoshop* and has one of the leading vector illustration programs, *Illustrator*. In the DTP field, though, Quark's page layout application still rules the roost, despite the countless major and minor improvements Adobe has made to *PageMaker* since it acquired it from Aldus in 1995.

Version 6.0 was the first big update, followed by version 6.3, and now, bigger and better than ever, here's version 6.5. Does *PageMaker* at last pack the muscle to dislodge *XPress*?

The first question is, is it worth upgrading to 6.5 if you've already got version 6.0 or 6.3? Yes. Especially at the upgrade price being offered by Adobe (£116). For a start, you now get *Photoshop*-style layers. Why? Well, the advantages only become apparent as you start using them. For instance, you can put all your page's graphics on one layer and all the text on the next – if you're an artist, you can tinker about with the images without having to look at that irritating grey stuff in between, and sub-editors can fix dodgy copy without waiting for their Mac to redraw countless high-res graphics. You can also work on mono and colour versions of the same document, adding messages for your writers or designers. And if you publish foreign editions, you can set up separate layers for each language. Handy.

You also get text and graphics frames, just as you do in *XPress*, which are a big help if you're a disorientated *QuarkXPress* user who has decided to jump ship. They are also useful for designing blank grids, ready for text and pictures to be imported in pre-defined positions.

Re-purposing

The big news, though, has got to be *PageMaker's* enhanced support for electronic publication. Previously you could export your documents as PDF files or HTML pages, but now you can set up hypertext links within your documents and they're exported intact. What's more, the HTML export function now supports HTML tables, making it possible to preserve simple multi-column layouts when you create Web pages.

The current buzz-word in publishing is "re-purposing", and *PageMaker* is about as flexible as it's possible to be, thanks to this electronic publishing support and its new automatic layout adjustment feature – the latter is intended to cut down on the redesign work if you change page sizes or orientation.

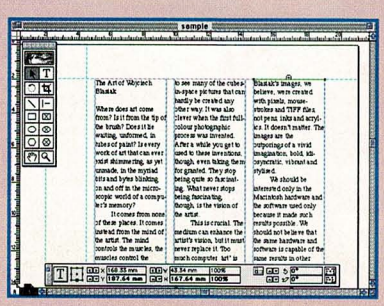
However, none of this is entirely automatic. The PDF file export is perfect, but the HTML export and auto-reformatting are both well-meaning but ultimately limited. HTML is too crude a format to preserve 90% of the layout tricks you use and the reformatting only goes halfway towards a properly rejigged layout. Still, it's better than nothing.

And there's more

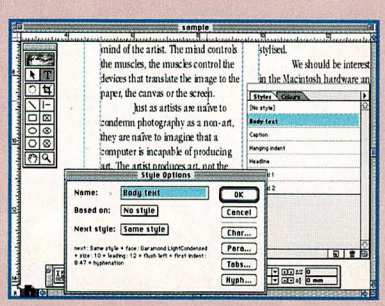
On top of this there's an assortment of lesser enhancements to make *PageMaker 6.5* better than ever. These include 15 new template designs, easier navigation

Publishing with PageMaker

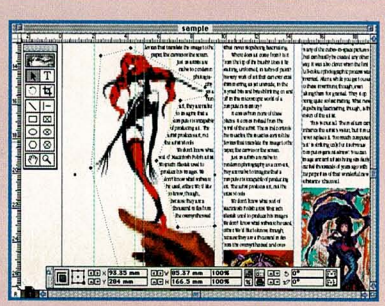
Here's a quick guide to creating a *PageMaker* publication for print, and then "re-purposing" it for electronic distribution. Our thanks to Polish artist (and MACFORMAT reader) Wojciech Blasiak for the pictures. (You'll find more readers' art on our Cover CD every issue.)



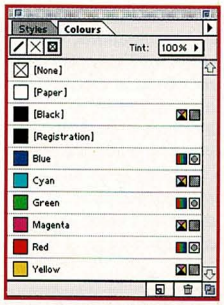
1 When you import text into your blank document, it's not flowed into ready-made text "boxes", but instead flows between your grid's column guides. Text boxes are created during import, and can be resized and moved later.



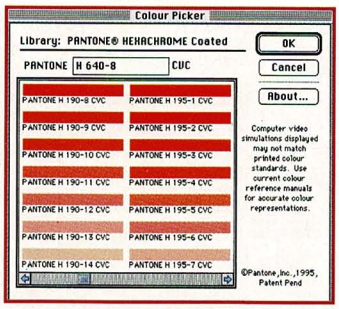
2 Like *QuarkXPress, PageMaker 6.5* supports style sheets. You can access these via the menus or, more quickly, using the Styles palette, as shown in the screenshot above. Double-click on the name of a style to modify it.



3 Creating irregular wraps around non-rectangular objects is easy. Clicking on a graphic reveals one set of handles for re-sizing and one for manual wrapping. You [shift]-click on the wrap outline to create a new node, then drag it into position.



PageMaker 6.5's **Colours palette displays an icon indicating the colour model used alongside each defined colour – no more excuses for sending RGB colours to the imagesetter, then! The program also supports Hexachrome colours if you use six-colour printing presses.**


Colour Picker
Library: PANTONE® HEXACHROME Coated
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About...
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Computer video simulations displayed may not match printed colour standards. Use current colour reference manuals for accurate colour representations.
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between pages (thanks to new "go back" and "go forward" commands), a "hand" tool for grabbing and scrolling pages and checking hypertext links, hi-fi colour support (using the expensive and comparatively rare six-colour process rather than four-colour CMYK) and faster *Photoshop* Plug-in performance.

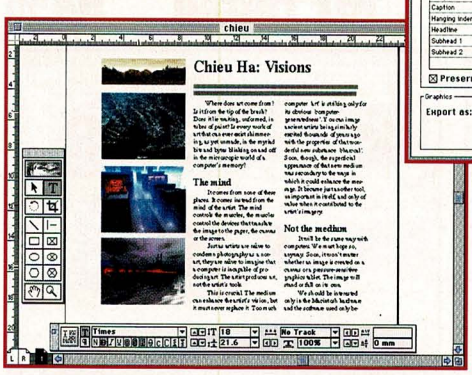
On top of this you can now import *Illustrator* files directly and even individual QuickTime movie frames – these will then form links to the original movie. PostScript Level two support is included and there's a "Save for Service Provider" Plug-in that checks all your graphics, links and files, and then parcels them up in a neat bundle for packing off to your imagesetting bureau.

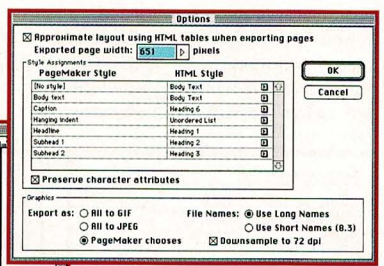
The same but different

PageMaker and *QuarkXPress* are the acknowledged DTP heavyweights, and even though every new version of *PageMaker* incorporates more *XPress*-style features, the two are still very different.

PageMaker is still more of a free-form design tool than *XPress*. Its documents are clean and uncluttered to look at, and it's easy to place and move text and graphics without losing the feel for the whole design.

XPress, on the other hand, can look a bit like a jumble of frames, guides and boxes unless you "hide guides". Technically, it's just as easy to move objects and test layout variations as it is with *PageMaker*. In practice, though, it feels much more regimented. You can't add any text or insert a picture without creating an appropriate box first, which is a bit like the old pre-Mac days of sticking pieces of paper on the page – you have to make an arbitrary decision on how big something should be and where it will go, before you even see it on the page. You can of course alter it all later, but it does make a difference, at least psychologically.





PageMaker 6.5's **HTML export function has been beefed up with support for HTML tables, making it easier (but not easy!) to preserve multi-column formats. You need to keep a close eye on positioning and some of the trickier layout elements to make it work.**

One of *PageMaker's* strengths is its ability to import and display a wide range of graphics file formats. Here's how a logo looks in *FreeHand*... and here's how the imported EPS looks in *PageMaker* – fully-scalable, smooth outlines and near pixel-perfect rendition. You can position EPS artwork without having to rely on low-res TIFF previews.

PageMaker is also vastly better at displaying graphics – especially EPS vector graphics. *XPress* will only import a pitiful low-res TIFF preview, so it's practically impossible to place graphics accurately except by printing a proof, adjusting, printing a proof, adjusting... and so on.

PageMaker will also import just about every graphics format under the sun without complaint, and will store them as part of the document or as linked files. It's the fluidity of the design process and the uncomplaining simplicity of the graphics handling that makes *PageMaker* the favourite among many designers.

War of words

However, *PageMaker* won't be popular among too many sub-editors. Despite its spelling checker, its thesaurus, its indexing, its nifty automatic table-of-contents generation and its automatic page header extraction, *PageMaker* still feels flaky when it comes to text.

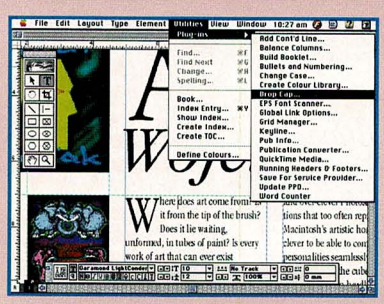
XPress's text-handling is bullet-proof, especially where text is chained from one page or box to the next. If you delete a box in the middle of a chain, the chain's broken and you have to link it up again – but all the text is still safe. If you ➤

ATM 4.0

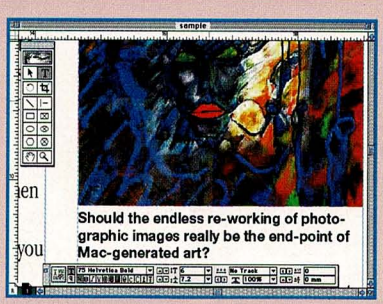
PageMaker comes with *Adobe Type Manager 4.0*, which antialiases (or smooths) PostScript fonts on-screen. This isn't just a cosmetic exercise, it provides a truer representation of typeface shape and "colour" – vital for designers developing effective layouts.

Upgrade

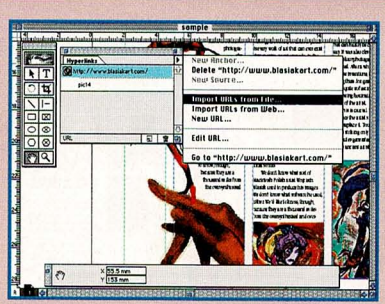
If you already have a previous version of *PageMaker*, then you can upgrade to version 6.5 for just £116, plus £6 post and packaging.



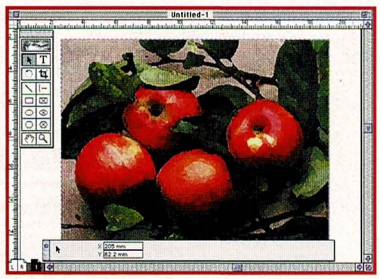
4 If you want a Drop Cap, you need to use the appropriate plug-in. *QuarkXPress* creates them easily, *PageMaker* bodges them up with tabs and tricky formatting, making them more difficult to modify later.



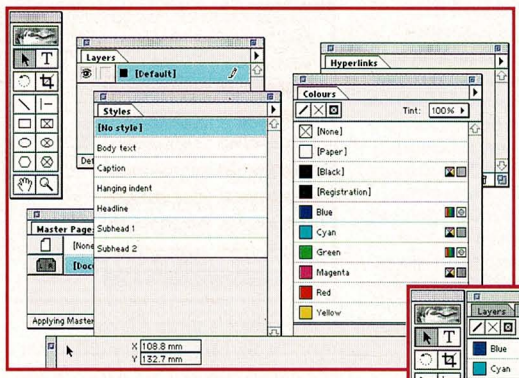
5 There are three different viewing resolutions. At the highest, screen redraw is slower, but you can see all the detail in imported bitmaps – a major aid for accurate positioning and getting a truer impression of the printed output.



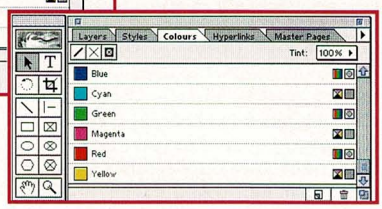
6 Now this is where it starts getting clever. You can build hypertext links into your publication which will be preserved intact when you export it to HTML. All this is easily handled through the Hyperlinks palette. ➤



There's no need to leave *PageMaker* to do your tinkering in *Photoshop* – *PageMaker 6.5* supports *Photoshop* Plug-ins directly, and comes with a bunch of them too.



Palette frenzy! Like most modern applications, *PageMaker* displays its most commonly-used functions on palettes. Unlike most applications, though, it enables you to drag-and-drop them into combinations of multi-tabbed palettes, and tear them apart again if you want to. Smart.



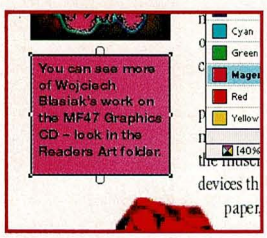
HTML Export

PageMaker 6.5 doesn't just translate your document into a Web page, it also converts all the graphics to 72dpi JPEGs or GIFs, generates the appropriate links and will store them in the same folder for you if you like.

delete a box from the middle of a *PageMaker* chain (instead of using the correct procedure) it's like chopping through an earthworm with your shovel. You get two bits which will survive quite happily independently, but no surgery known to man (or earthworms, apparently) will ever reunite them. You'll also lose the text in the box you deleted.

This probably doesn't matter because – as *PageMaker* fans will argue – what you should and should not do will soon become second nature. But this and *PageMaker's* other text-handling quirks are still annoying – and unnecessary.

The "Story Editor" is certainly unnecessary. It's designed for fast and major text changes, but shouldn't those have been done in a word processor before the text was imported? Surely the only text changes you're going to make in the document itself will be to make it fit and wrap properly on the page, and that's where you need to work, on the page.



Frames are one of the new additions to version 6.5. They behave in the same way as *QuarkXPress* frames, and may make *XPress* refugees feel at home. They're also useful for designing structured templates, or grids.

Decisions, decisions

It's swings and roundabouts, then. *XPress* and *PageMaker* both have their strong points, and their (vocal) fans. But one thing you can't argue about is the price – *XPress* costs roughly twice as much as *PageMaker* and has none of the cheaper program's value-added features. We've said it before, but it really is difficult in the face of all this to justify buying *QuarkXPress* over *PageMaker*. Except...

QuarkXPress expertise is a highly valuable commodity for professional designers selling their services. Its merits become more apparent only on long acquaintance. It really is the better of the two at handling pages with complex text flows, boxes and layouts, and it makes life much easier for the subs, too. Also, in the magazine world, where consistency between pages and issues is essential to preserve the brand image, *XPress* is much better for creating blank grids.

XPress is fighting back. *QuarkImmedia* is extremely expensive, but its electronic document creation tools knock *PageMaker's* HTML export into a cocked hat. Rumour has it, too, that *XPress 4* will feature automatic table-of-content generation and other "long document" tools. After years of *PageMaker* playing catch-up, it looks as though Quark is starting to lift ideas from Adobe.

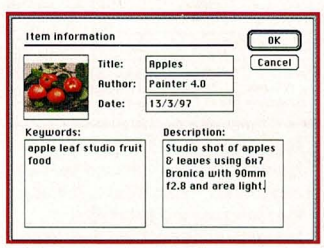
If you can afford it, *XPress* still rules – just. If you can't (99% of us), *PageMaker* is too sweet a package to turn down. **MF**

Adobe PageMaker 6.5

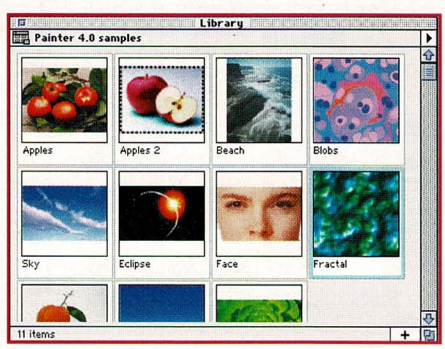
Powerful, flexible, wonderful to design with and affordable. Text-handling is still quirky, though, and you need some serious hardware to run it.

Features	**98%**
Ease of use	**77%**
Documentation	**91%**
Value for money	**95%**

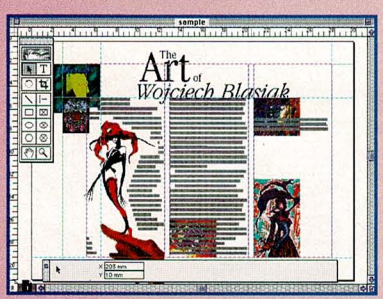
MF rating 94%



PageMaker's libraries will store text and graphics, and you can assign names, keywords and notes to each item. The libraries are fully searchable.

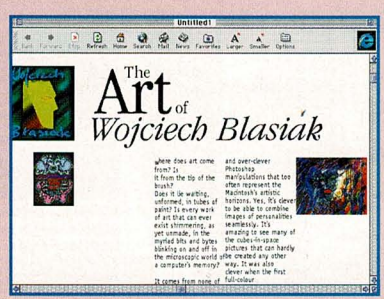


Publishing with PageMaker (continued)



7 Version 6.5 is supposed to be able to reformat your documents automatically if you change page sizes. Well, it makes an effort (here we swapped from A4 portrait to landscape), but you'll still have to do at least half the work yourself.

8 *PageMaker 6.5* comes with *Acrobat Distiller* and the *Acrobat 3.0* reader. When you export a publication to PDF format, you get a pixel-perfect on-screen version that anyone with the reader can view and print.



9 This latest version of *PageMaker* takes advantage of HTML tables to preserve multi-column formatting when you export documents to HTML. Irregular text wraps and Drop Caps are just two layout devices that aren't going to work, though.

PageMaker 6.5 makes "re-purposing" printed pages easier than ever, and compares well with *UniQorn 1.01*, the newer DTP package with special re-purposing features. See our review in MACFORMAT 40 or call Principal on 01706 832000 for details.

Update and plug in

Two major players in the music software field have released new versions of their flagship sequencers. Ian Waugh comes face-to-face with the top of the pops.

If you're looking for a sequencer to live and grow with – for such is the close relationship many musicians develop with their software – the choice is not by any means an easy one. All the major sequencers have that extra something to recommend them and making a choice is really down to personal preference. The two most popular sequencers are Steinberg's *Cubase* and Emagic's *Logic*. But if you're reading this hoping to find out which one is best, you'll be disappointed. It's such a complex issue that even the ratings don't tell the whole story.

Both programs use pattern-based sequencing. Recordings appear as blocks on the main "arrange" page. You can drag them with the mouse onto any track, copy the same pattern onto several tracks, cut and paste patterns and so on. It's a very flexible way of working and many musicians find it very intuitive.

There are a number of editors to help edit the music. The **Event List** shows notes and other MIDI data in a list – which is ideal for the precision editing of note and MIDI controller data. The **Score Editor** shows notes on the stave for users who like working with the dots, and this editor is also used to prepare scores for printing. The standard *Cubase* program has scoring facilities but if you want to go that extra mile, *Cubase Score* has many more facilities. *Logic* too has excellent scoring facilities, and can produce quality print-outs.

For aspiring musicians who are not so familiar with notation, the grid or piano roll editors (in *Logic* it's called a **Matrix** editor) show notes as oblong bars on a grid against a piano keyboard. It looks a little like the piano rolls used with old-fashioned pianolas, hence the name. These editors are useful for seeing if the starts and ends of notes line up and for checking how staccato and legato notes are. You can then drag notes around the grid to move their position and change their length, so editing is still fairly intuitive. This is ideal if you're not comfortable with the dots.

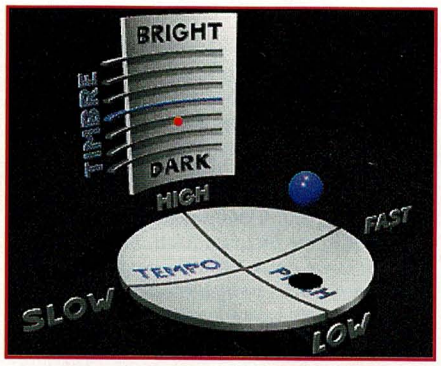
There are other editors, too, such as *Cubase's* **Drum Editor,** which is great for creating drum patterns. *Logic* has a **Hyper Editor** which can be used for drum patterns. It's not as intuitive, but it is much more flexible and you can edit and create almost any kind of MIDI data including pitch bend, expression, note velocities and even notes themselves. It's very versatile but it takes a little time to really master.

In both *Cubase VST* and *Logic Audio*, you can record audio tracks alongside the MIDI tracks. These also appear as blocks on the arrange page and you can move, cut, copy and paste them in much the same way as the MIDI recordings. Usefully, the audio data is saved to disk – the process is commonly referred to as "direct-to-disk" (often "D2D") recording – so you are only limited by the size of your hard disk, not by the amount of RAM you have.

Editing uses a system of markers to specify the sections of the recording you want to play. This means you don't have to physically edit the data on disk, so your original recording remains intact – a process known as non-destructive editing. Both *VST* and *Logic Audio* can use the digital capabilities of a PowerMac, which means no additional hardware is needed – although they can also work with digital audio cards, too.

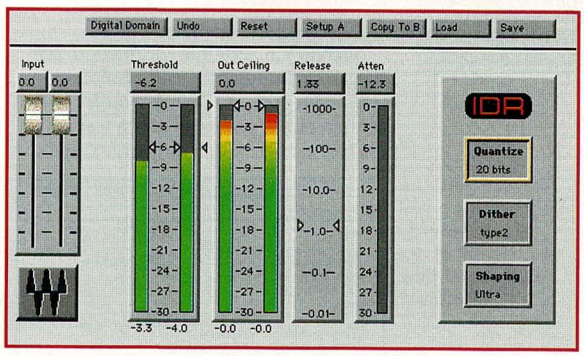
VST has a wealth of features – the audio facilities are nothing short of stunning and the program is simply excellent value for money. *Logic* may not have as many audio effects, but it has a plethora of powerful processing, editing and arranging functions which are second to none. Both programs are deservedly popular, so making a choice between the two might come down in the end to personal preferences and requirements.

Finally, we also look at some plug-ins that are available for *Cubase VST* (and, as it happens, also work with some other programs). Like *Photoshop* Plug-ins, these expand or enhance the original features of the program, enabling you to add just the functions you want. ➤



***Logic Audio's Time Machine II* now has a formant control, which enables you to adjust the harmonic content of a recording.**

***Cubase VST's* Tun-A Chromatic Tuner helps ensure all acoustic instruments are in tune before you record them.**



The *L1 Ultramaximiser* in the *Power Pack* collection of plug-ins for *Cubase VST* gives a recording the highest level and maximum resolution prior to mastering.

Jargon busters

Arpeggiator: A device which takes a series of notes and plays them in various sequences such as ascending or descending order.

Compressor: A hardware or software device which lowers the volume of a signal when it rises above a certain determined level.

EQ: Short for equalisation, a technical term for tone controls.

Expander: Works in the opposite way to a compressor by raising the level of signals with a low volume.

Gate: A device which only enables signals with a level above a certain volume to get through. It can help remove low-level background noise.

Limiter: A compressor with a high compression ratio used to prevent the volume of a recording going higher than a certain level.

MIDI Controllers: MIDI data which controls parameters, other than notes, like pitch bend, volume modulation, and so on.

Q: The width of the frequency in a filter which is being modified.

PRICE £649	**ON SALE** Now	**CONTACT** Sound Technology Plc on 01462 480000	**WEB SITE** http://www.soundtech.co.uk/				
MAC **Processor:** 68030 • **RAM:** 12Mb	**POWERMAC** **Processor:** any • **RAM:** 16Mb	**REQUIRES** **System:** 7.5 • **HD space:** 16Mb • **Screen:** 640 x 480 • **Colours:** 256					

Logic and Logic Audio

MACFORMAT Classic

The latest release of *Logic* and *Logic Audio* is version 2.6. One of *Logic*'s most interesting and powerful sections, and arguably the most difficult for newcomers to grasp, is the Environment page. It helps organise the routing of data to your MIDI devices and it can process MIDI data within the program itself. For example, there are delay lines, arpeggiators, transformers (which convert one type of MIDI data into another) and various other modules which you can insert into a MIDI channel or apply to incoming MIDI data.

There are also tools such as knobs and sliders which can generate different types of data, enabling you to construct your own tools. MIDI mixers for various types of instruments are also popular – some of the demo files include **Environments** for creating pseudo vector synthesis (where different sounds crossfade into each other), synth editors and for generating bass lines. The **Environment** facilities can even be used to create interactive demonstrations.

Version 2.6 adds more features to the **Arpeggiator** including additional up and down options, a random order setting, random velocity and a feature to make the notes play as a chord. There's also a **Random Resolution** setting which changes the timing values of the notes. Most peculiar.

Emagic has also included **Capture Recording,** which was originally implemented in *Notator*, the forerunner of *Logic*, on the Atari ST. Essentially, the program is always recording MIDI data, even if it is not officially in **Record** mode. It means if you're doodling and play a perfect music part but realise that you had not engaged **Record** you can still retrieve what you played.

The program has been endowed with a new timer which improves upon the old one, speeds up screen redraws and increases the number of audio tracks in *Logic Audio*.

But the major features of the update are in *Logic Audio* and in *Time Machine II*, which can change the pitch and duration of a recording without affecting the other parameter. Imagine trying to do this on a tape recorder. If you slow down the tape, say by pressing your finger on the tape reel, the duration becomes longer but the pitch also lowers. By manipulating the data digitally, it's possible to change these parameters independently by processes known as pitch-shifting and time-stretching.

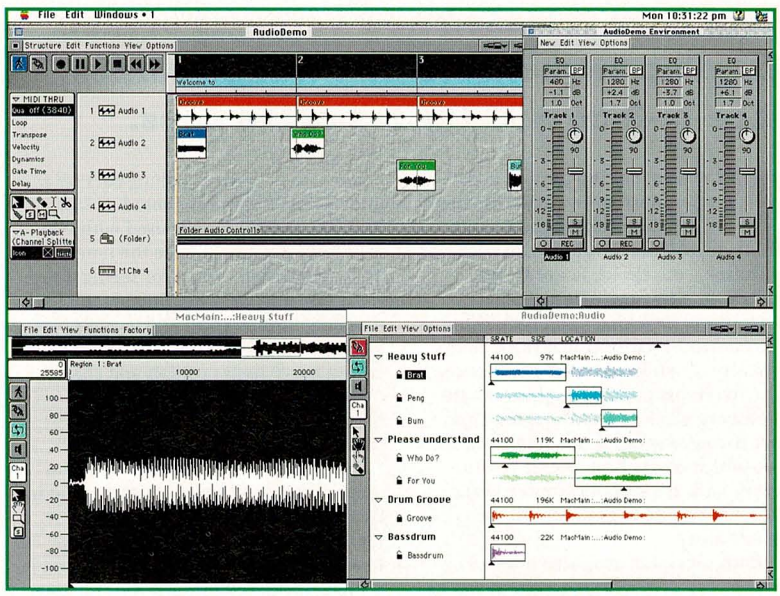
However, when traditional processing techniques change the pitch of vocals, for example, they also change the formants. These are the timbral characteristics that determine the tone and identify a voice as male or female. The *Time Machine II* now has a **Formants** control so you can maintain the tonal characteristics during a pitch shift. Alternatively, you can simply use the formants to change the tone and apparent gender of the voice – lots of scope for experimentation here.

The update includes several other improvements, but we've covered all the biggies. The update pack includes a new, no-fuss manual which you simply clip into your ring binder. Nice – much better than a few dozen scrappy addendum sheets.

Logic continues to be one of the most powerful sequencers on the market, a hugely professional tool with many exciting facilities. It's reasonably easy to use at a basic level but it has a host of features you can grow into. Very highly recommended.

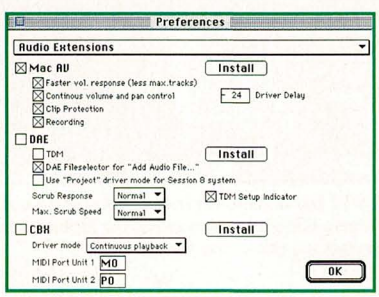
Upgrades

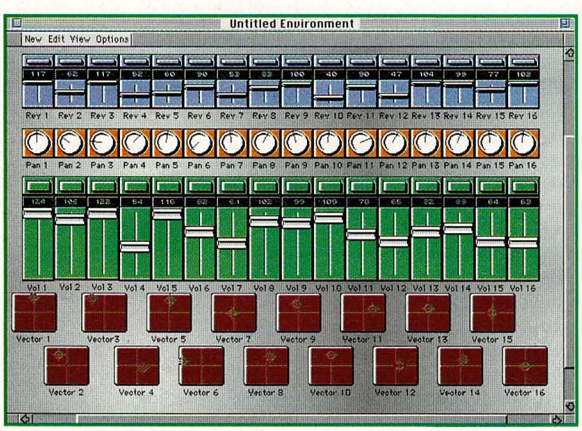
Logic 2.6 (without *Audio)* is £349. An upgrade from *Logic 2.5* to *2.6* will cost you £25. An upgrade from *Logic Audio 2.5* to *2.6* is just £49. The upgrade from *Logic 2.6* to *Logic Audio 2.6* currently costs £299, but will be £249 when the *Audio* dongle becomes available.



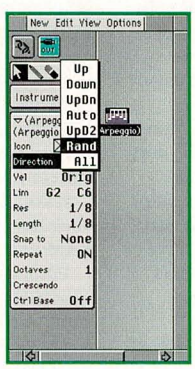
***Logic Audio* has a highly graphic user interface and handles MIDI and digital audio tracks in similar ways, making it easy to integrate the two.**

You can get more performance out of *Logic Audio* by electing not to use various real-time functions.




Untitled Environment
New Edit View Options
Rev 1 Rev 2 Rev 3 Rev 4 Rev 5 Rev 6 Rev 7 Rev 8 Rev 9 Rev 10 Rev 11 Rev 12 Rev 13 Rev 14 Rev 15 Rev 16
Pan 1 Pan 2 Pan 3 Pan 4 Pan 5 Pan 6 Pan 7 Pan 8 Pan 9 Pan 10 Pan 11 Pan 12 Pan 13 Pan 14 Pan 15 Pan 16
Vol 1 Vol 2 Vol 3 Vol 4 Vol 5 Vol 6 Vol 7 Vol 8 Vol 9 Vol 10 Vol 11 Vol 12 Vol 13 Vol 14 Vol 15 Vol 16
Vector 1 Vector 3 Vector 5 Vector 7 Vector 9 Vector 11 Vector 13 Vector 15
Vector 2 Vector 4 Vector 6 Vector 8 Vector 10 Vector 12 Vector 14 Vector 16

***Logic*'s extremely flexible Environment page offers facilities approaching that of a mini programming language. Here's an environment which enables you to apply vector synthesis techniques to a standard General MIDI sound set.**



In version 2.6, *Logic*'s Arpeggiator in the Environment page has several new functions.

Logic and Logic Audio 2.6

One of the most powerful sequencers around, packed with features and great for anyone serious about making music.

Features	**92%**
Ease of use	**78%**
Documentation	**89%**
Value for money	**92%**
MF rating	**92%**

PRICE £329	**ON SALE** Now	**CONTACT** Harman Audio on 0181 2075050		**WEB SITE** http://www.steinberg.net/	
MAC PowerMac only	**POWERMAC** **Processor:** any • **RAM:** 12Mb (24Mb recommended)			**REQUIRES** **System:** 7.5 • **HD space:** 16Mb •	
Screen: 640 x 480 • **Colours:** 256 • **Extras:** 256K Level 2 RAM cache					

Cubase VST 3.02

Don't be misled by the tiny, incremental increase in the version number, which is a mere 0.2. This latest version of *Cubase VST* has a remarkable host of new features. The most important aspect of *VST* is that it includes not only MIDI and direct-to-disk recording, but also a built-in effects unit and EQ controls. It is a complete virtual studio, hence VST – Virtual Studio Technology.

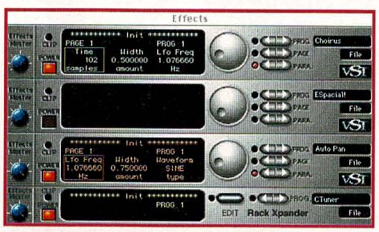
Like *Logic*, *VST's* drivers have also been updated and now support digital audio cards including Digidesign's *Audiomedia III* and Korg's *121*. Of course, one of the attractions of *VST* is that you can run it on a PowerMac without any additional hardware, using just your computer's Digital Signal Processor (DSP) and processing power. With a nippy PowerMac you could achieve eight, 16 or even 32 tracks of digital audio while simultaneously applying effects and EQ to the tracks! The actual output depends on the system you're using – the CPU, the amount of RAM and the speed of the hard disk – so it's difficult to give absolute performance figures.

Effects are selected from an on-screen four-module FX rack, and a different effect can be assigned to each module. There were already four effects – **Choirus** (chorus and flange effects), **ESpecial** (reverb), **Auto Pan** and **Stereo Echo** – and version 3.02 adds two more.

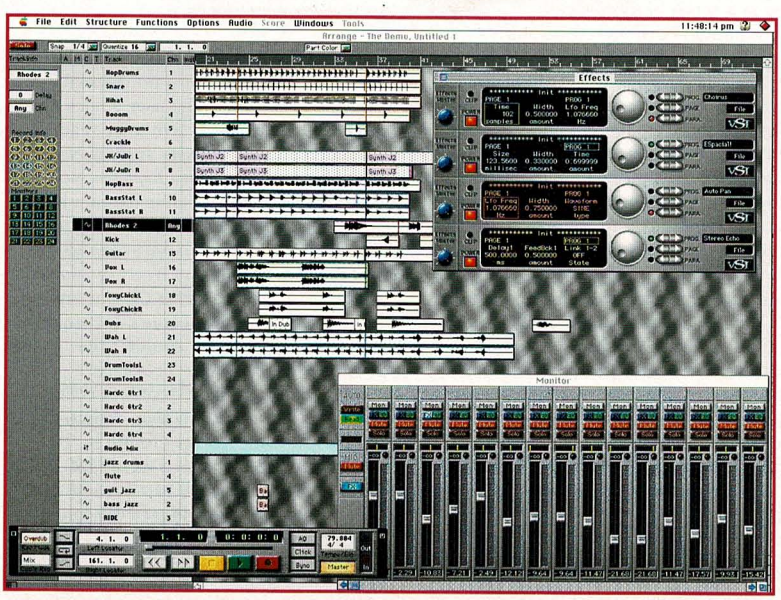
Normally, each audio channel can send its signal to the effects module via the **Mixer** – much like a hardware mixer uses effect sends and returns. A new addition to *Cubase* is the **Master Effects** rack. It's essentially the same as the **Monitor Mixer** rack but it's used to process the entire mix and it supports up to four effects at the same time, too. **Master Effects** is particularly useful if you want to add reverb to a complete mix or run it through a compressor, for example. *VST* now supports plug-in effects (see overleaf) and you can use them here too.

The first new built-in effect is the **Tun-A Chromatic Tuner,** which enables you to check the tuning of any input signal. The display indicates whether the signal is sharp or flat and how much it's offset. It can also handle microtuning, if you're into the avant garde.

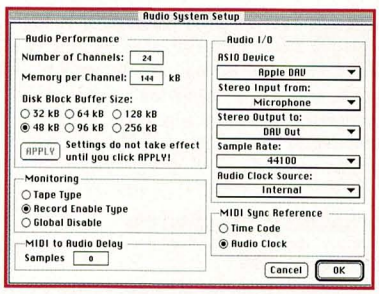
The second effect is the **Wizard** width enhancer, which is a **Master Effect**. It takes a stereo signal and "widens" it to increase the perceived stereo image. It's not as sophisticated as some stand-alone spacialisation effects – but then it is essentially free and it's a useful effect to run your audio through before mastering to make the most of its stereo imaging.



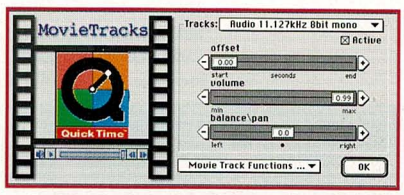
The four-unit FX module is modelled after a hardware FX rack. Each module can be assigned a different effect and there are currently six to choose from.



***Cubase VST* incorporates a professional sequencer with direct-to-disk recording, EQ, an effects rack and a mixer – and it looks good, too!**



The Audio System Setup window offers more control over the audio settings and drivers to ensure optimum performance with your system.



***MovieTracks* provides more integration with QuickTime movies, enabling you to write a movie score and export it movie itself.**

After recording, cutting, pasting, processing and mixing half a dozen or more tracks to create a section of a song, you may think it better if that section was in two stereo tracks rather than hogging many tracks and using several effects (which requires processing power). No problem. Simply select the new **Export Audio** feature, which saves selected tracks into a new audio file and enables you to include effects and mixer automation settings in the mixdown. The file can be imported back into the program so you can carry on working.

If you use drum loops, another useful facility is the ability to import files produced by Steinberg's *ReCycle*. This is a separate £199 program in which you can chop up sample loops, change the tempo and substitute sounds within the loop. It's an excellent program and well worth investigating if you use sample CDs. Being able to import *ReCycle* files into *Cubase* means you can use *ReCycle* to create the loops and then import them (ready to play) into *Cubase*.

Also new in *VST* is **MovieTracks,** which enables you to import and export audio soundtracks between a QuickTime movie and *VST*. You can write a unique audio score to accompany a QuickTime film, sync it to the movie, import it into the movie and save both audio and video as a single QuickTime movie.

The new additions to *VST* add to an already impressive program. If you want to work with MIDI and audio simultaneously, there is no more versatile program available for the money.

Cubase VST 3.02

A highly graphic, high-tech look and feel sequencer with a superb range of digital audio features. Superb value for money.

Features	**94%**
Ease of use	**89%**
Documentation	**93%**
Value for money	**94%**

MF rating 93%

MACFORMAT Classic

Upgrades

An upgrade from *Cubase VST* to the current version *VST 3.02* will cost you just £49. *Cubase Score 3.02 VST* (the VST version of *Cubase* with added score-writing features) will set you back a cool £499.

ON THE CD

Save-disabled interactive demo

VST Plug-ins

However good software may be, it's always useful to be able to add to its features. In recent years, support for plug-ins has become increasingly common in music software and *Cubase VST 3.02* is one of the latest to join the club.

Loudness Maximizer

Steinberg £299
Harman Audio on 0181 2075050

The *Loudness Maximizer* comes from *Cubase's* developer, Steinberg. It uses compressor and limiter techniques to increase the perceived loudness of a sound – rather than simply increasing the volume, it actually modifies the audio data. This is not generally desirable but the program uses intelligent algorithms to ensure that the changes are musically appropriate.

The *Loudness Maximiser* boosts the perceived volume of a recording and has attractive, easy-to-use controls.

It works best with material which is not sonically complex (most dance music falls into this category) but it can also boost most other types of recording. The plug-in has only a handful of controls, it's very effective and easy to use.

Loudness Maximizer

MF rating 78%

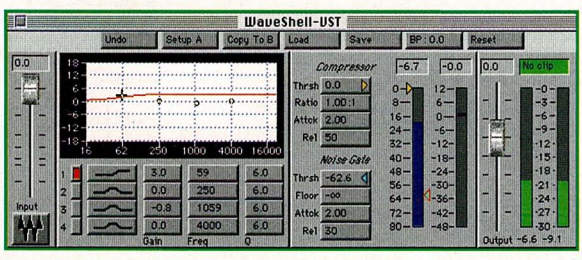
AudioTrack

Steinberg £169
Harman Audio on 0181 207 5050

In the world of software audio processing, the name Waves is synonymous with quality plug-in digital effects for Digidesign's professional *Pro Tools* system. Waves continues to develop products and makes existing ones available to users of more modestly-priced systems.

AudioTrack is one such product. It has one window housing three effects – EQ, a compressor/expander and a noise gate. There are four bands of EQ and each band can be set to one of five EQ types. You can adjust the EQ curves directly on the visual display, which makes operation intuitive, or you can adjust values numerically. A nice touch is the **Output** indicator which warns if the output level is too high because of a boosted EQ level. The EQ in *VST* may well be enough for you, but this one is more sophisticated and controllable.

The compressor/expander and the gate are easy to use, having only four parameters each. However, there is no graphic display, as there is in the C1 in the *Native Power Pack* below. A printed manual is also missing, unfortunately, but one is supplied on disk in Adobe *Acrobat* format.



***AudioTrack* has EQ, a compressor/expander and a noise gate, all controlled from one window – but only the EQ has a graphic display.**

Audio Track

MF rating 82%

Native Power Pack

Waves £499
Natural Audio on 0181 2071717

The *Native Power Pack* is a collection of six Waves plug-ins which have been released individually at prices up to £500 – so this pack seems incredible value for money. All Waves programs use a dongle (a hardware "key" that plugs in between your Mac and keyboard, without which the programs won't run) called a WaveKey for copy protection. Dongles seem to be particularly prevalent in music software, but the WaveKey dongle is slightly better than most as it can be programmed to authorise several programs. You only need one correctly-programmed dongle to run the *Power Pack*, and not six separate ones.

Most of the effects have a highly graphic interface and the results are displayed in a visual manner. This makes it easier to understand what the effect is doing to a recording than just looking at a series of numeric parameters – although there are numbers, too, for precision editing.

The *Q10 Paragraphic EQ* offers ten bands of EQ, each with four filter types. The "frequency", "gain" (volume) and "Q" can be changed numerically or by dragging points directly on the graphic display. In preview mode you can loop a sample while making changes to the filter so you can hear the changes in real time. Over 200 presets are supplied and you can create and save your own.

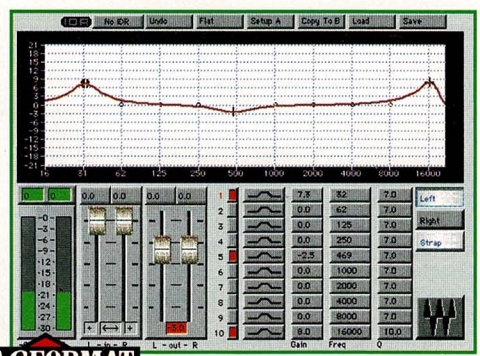
The *C1 Compressor/Gate* works in three modes, offering a range of compression options. The graph shows exactly how the signal will be affected. There is also a range of filter options, including one which enables compression or gating of a specific frequency. About 40 presets enable you to create and save your own settings too.

The *L1 Ultramaximiser* maximises the signal level of a recording to increase the perception of clarity. You know how eight-bit multimedia files sometimes sound a bit grainy. Well, the *L1* increases their perceived resolution to that of an 11-bit file – similarly, a 16-bit CD audio file would sound more like a 19-bit file. You can use the *L1* at the end of the processing chain prior to mastering.

The *S1 Stereo Imager* widens the perceived stereo width and spaciousness of a recording, and you can even move the image "beyond" the speakers. The graphic display shows visually where the sound is. The *S1* shares similarities with *VST's Wizard* but it's rather more sophisticated. If you like your sound panoramic, you'll love this.

TrueVerb is one heckuva reverb unit. You can control the room size, its frequency response, the distance to the source and many other more esoteric reverb parameters. Two displays show the time and frequency responses, but if you don't want to get too involved in psychoacoustical reverberation theory(!), you can simply select some of the presets and twiddle with them.

Finally, *WaveConvert* is a batch file processor which converts – or downsamples – 16-bit files to eight-bit files. Not something the musician would want to do often, but it's an everyday job in the multimedia industry. Downsampling usually adds noise to a sound, but *WaveConvert* has several functions which also minimise the loss of quality.



With the *Power Pack's Q10 Parametric EQ* you can drag filter curves around the display or edit the parameters numerically.

Unfortunately, there is no manual with the *Power Pack*. The user guides are written in HTML and have to be read using an Internet browser such as *Netscape Navigator* or *Internet Explorer*. Now the *Pack* is an unmistakable bargain but this is penny-pinching in the extreme – especially if you don't have access to the Net. Browsers are pretty freely available (on the MACFORMAT Cover CD, for one), but they're not most people's document viewer of choice. Why couldn't the developer use *DocMaker* or *Acrobat*?

Still, this really is an excellent collection of quality effects, which, essentially, includes the best features found in the other two plug-ins, plus a whole lot more. It's so versatile, it can even be used with other programs too (see the margin note). A worthwhile investment. **MF**

Native Power Pack

MF rating 91%

Power Pack compatibility

Native Power Pack also works with *Adobe Premiere 4.0*, Macromedia *SoundEdit 16 v2*, Macromedia *Deck 2.5*, *Bias Peak 1.1* (*1.5* recommended), and any *Premiere*-compatible application, as well as *Cubase VST 3.02*.

Would you like to feel deeply relaxed yet fully alert in just 7½ minutes?

Tune in and turn on to shut out everyday pressures – and unleash the natural resources of your mind – writes Chris Payne

Dazzling patterns of colour swirled in front of my closed eyes, and gyrating shapes soared across my visual field as hypnotic rhythmic tones caressed my ears.

All I'd done was put on the liteframes and headphones, pressed a few buttons on the MindLab's compact console and lay back with my eyes closed.

As the patterns and sounds slowed down I felt my mind sink deeper and deeper, and it seemed as if I was rolling back through space.

Clear your mind in minutes

Seven and a half minutes later I re-emerged – relaxed, alert and with no mind chatter. The serene state lasted for the next two hours. This was my first experience of using the remarkable MindLab.

It may at first sound like a way out Spielberg creation, but the MindLab mind machine is far from science fiction. This is science fact, tried and tested to help you cope with life's stresses and strains.

Using light and sound patterns matched to your own natural rhythm, the machine can induce a state of relaxation, and even aid learning.

Far from being futuristic, the MindLab is based on ancient techniques blended with sophisticated technology.

In 2000BC Ptolemy noted that sunlight flickering through the spokes of a rotating wheel caused fascinating visual patterns and a feeling of euphoria.

UK research validates the technology

Then in the late 1940s a British neuroscientist, W. Gray Walter, measured the effects of an electronic strobe using an EEG, which monitors brainwave activity.

He found that rhythmic, flashing lights altered activity across the whole cortex, producing trance-like states of profound relaxation and vivid imagery.

Since then, a series of independent studies have confirmed Walter's findings. Research now suggests that machines using light and sound can dramatically reduce stress.

Change mental states easily

Benefits include deep relaxation within minutes, improved learning ability and enjoyment of music, increased alertness, enhanced ability to visualise new goals, and better sleep at night.

The user of the MindLab chooses the state of consciousness that he or she wishes to obtain, and is lulled by a rainbow array of colours and rhythms into the chosen state of awareness.

Just press a few buttons and you can choose to relax, sleep, visualise, energise or learn. Lie back, close your eyes and let the kaleidoscopic light patterns and rhythmic tones gradually shift your consciousness.

The MindLab grows with you!

The MindLab is infinitely expandable too. Users can play through the MindLab cassette tapes or CDs with special sounds at the beginning of each track. These tones reprogramme the MindLab so that the hypnotic lights synchronise perfectly with the relaxing music which follows, or with the voice of a qualified hypnotherapist as he helps you to create changes in your behaviour.

Rave reviews in the press

"The systems reliably produce visual effects and relaxation... the experience resembles the closing sequences of 2001: A Space Odyssey."
– *New Scientist*

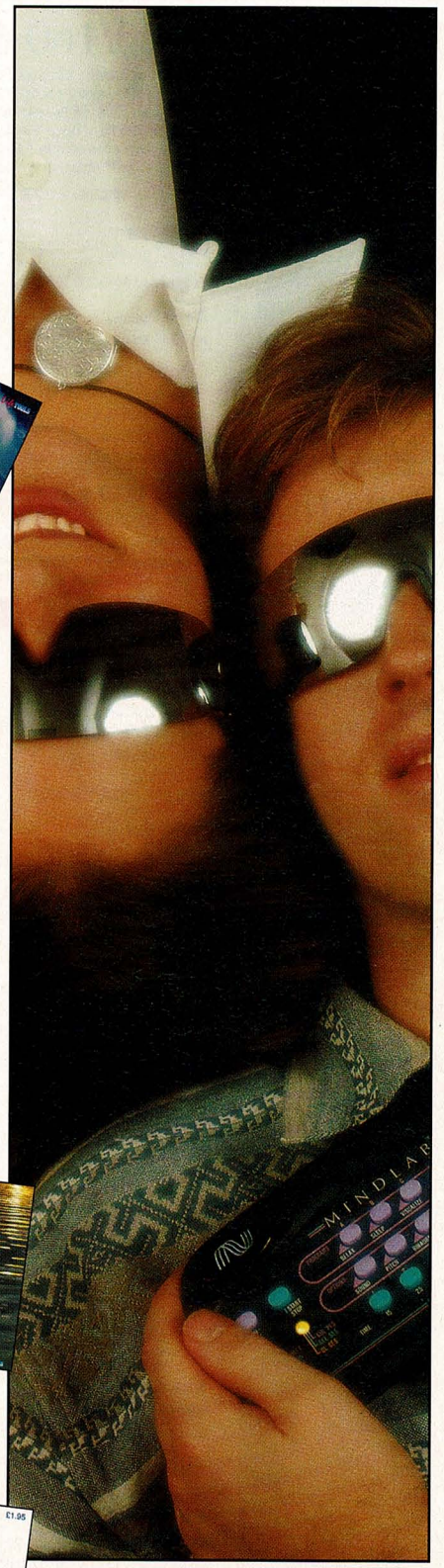
"The MindLab produces a feeling of total inner calm where once there was chaos. The technology of tomorrow really is with us today."
– *Fit Body magazine*

"The MindLab has received rave reviews from both the scientific community and the public... After a few minutes the dazzling spectacle winds down into a deeper state of consciousness."
– *New Scotsman*

"The machine really does need to be experienced to be believed." – *Computer Life*

"The MindLab gives you hundreds of different methods, via amazing sounds, music and light displays, of achieving Nirvana."
– *London Evening Standard*

"The MindLab really works!" – *Ms London*



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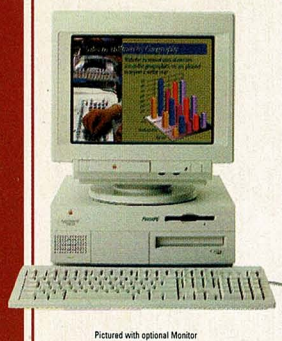

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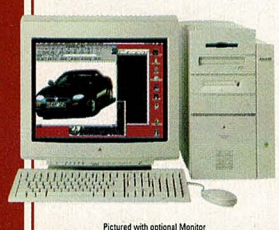

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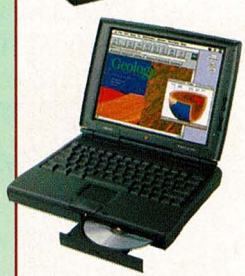

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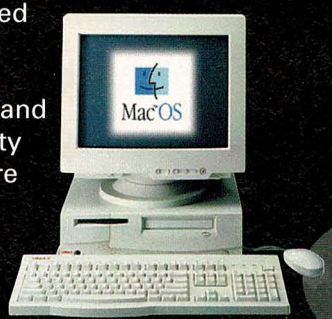

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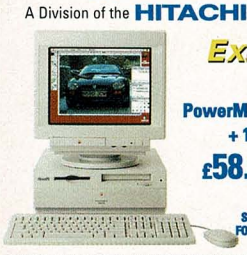

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Mini Tower Pictured with optional Monitor

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Hard Disk	1.2Gb	2.5Gb	1.2Gb	2.5Gb	2.5Gb
PCI Slots	3	5	3	5	5
Drive Bays	2 External, 1 Internal	3 External, 2 Internal	2 External, 1 Internal	3 External, 2 Internal	3 External, 2 Internal
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StarMax 4000 Systems (PowerPC 604e)

Desktop Pictured with optional Monitor

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Memory	16Mb	32Mb	16Mb	32Mb
VRAM	2Mb	2Mb	2Mb	2Mb
Hard Disk	1.2Gb	2.5Gb	1.2Gb	2.5Gb
PCI Slots	3	5	3	5
Drive Bays	2 External, 1 Internal	3 External, 2 Internal	2 External, 1 Internal	3 External, 2 Internal
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All models include: 256k Level 2 Cache, Internal 1.44Mb SuperDrive, Internal 8x CD-ROM Drive, Stereo 16-Bit Sound I/O, Keyboard & Mouse, Five-Year (1st year on-site) Manufacturer's Warranty.

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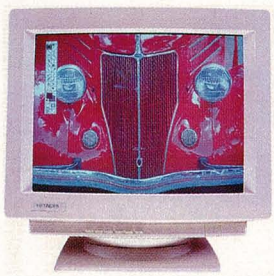

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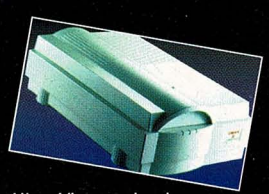

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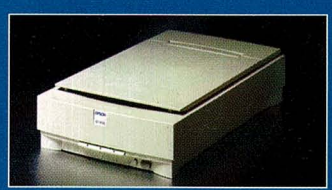

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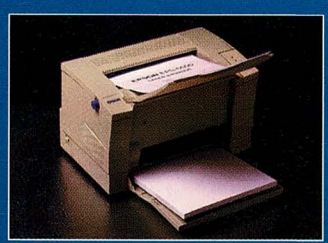

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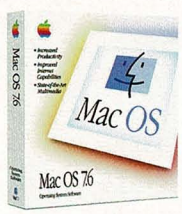

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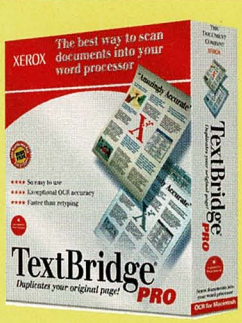

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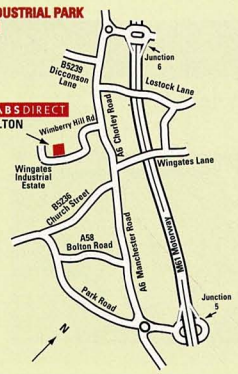

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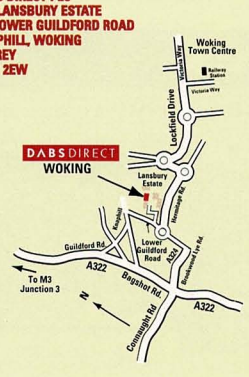

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Extras: 2x speed CD-ROM drive.							

Cricket

A CD-ROM dedicated solely to cricket – you're either going to love or hate it. It's time to get padded up and check out whether this will bowl you over or leave you stumped...

Test cricket might capture the public imagination, but there's a history and profile of all the county sides, too.

Radio highlights include great moments of commentary, with diversions on cake and buses...

If you can break 100 in this entertaining quiz, you're doing better than me. Or you could try to beat a friend in two-player mode.

It's the law

Games have rules, but not cricket. Unique among sports, it has Laws, laid down by the MCC over 200 years ago.

It's just not cricket

Cricket has given English more figures of speech than any other sport: try stumped, bowled over, caught out, play a straight bat, knocked for six, sticky wicket, break your duck...

Cricket was invented, so the old saying goes, to give the faithless a concept of eternity. Like classical music, its beauty is complex and subtle – another way of saying that you can travel to Australia, play for five days and still have no result. The opening titles of this CD set a dreamy video montage to "Nimrod" from Elgar's Enigma Variations, conjuring up the sport's Edwardian golden age.

All quite moving, but if you try to run the program on anything but a Power-Mac, that's the only movement you're likely to get – on a Performa 630 it was impossibly slow and suffered memory-based crashes. You need a PowerMac to enjoy it, unless you're the sort who found Geoff Boycott's approach just a little too cavalier.

There are three main parts to *Cricket*: Reference, Video/sound goodies, and a Quiz. Reference fans can find scorecards of every English test, going back 130 years. There are also results, tables and averages for all domestic county championship and limited-overs competitions. Your need to consult it may be infrequent, but if you do need to know the details of the last time England scored 300 to win a test in the fourth innings, you can find it – and browsing one match inevitably leads to another. There is no search facility, though: you can look up things by date but not, say, those tests Bradman played in. The details seem reasonably complete but can be slow to appear and there are some misalignments and poor formatting here and there. Player biographies give you pictures, career details and descriptions of 2,000 players, some with video clips.

Footage of W G. The old boy still had nifty foot-work, the bat plumbline-straight and left elbow high as ever – England batsmen, please note.

The video and sound clips are the treats of the program. You can, among many others, relive the BBC footage of Dominic Cork's hat trick against the West Indies, or watch the only motion pictures ever taken of the great W G Grace, over a century ago. It's a humbling moment, seriously: half a minute of the great man, by now portly and long-whiskered, casually knocking up while boatered and stiff-collared spectators pass behind unconcerned. Meanwhile the two dozen radio clips offer Hutton's 364, Wilfred Rhodes, Eddie Hemmings's 1989 B&H Final last-ball four, plus Brian Johnston in cake mode and in his full "Botham leg-over" hysterics. Johnners, you're sadly missed.

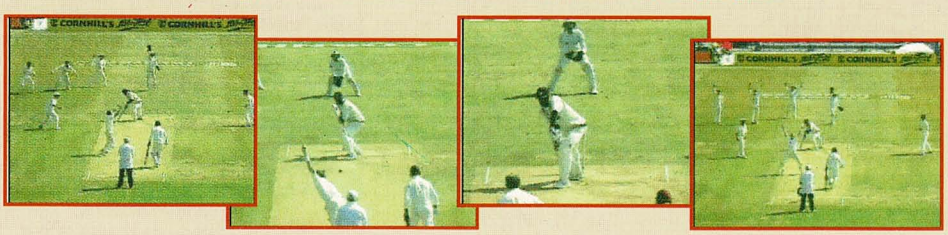
The quiz is a neat idea and will keep you coming back to the program time and again. You answer cricket trivia questions (50,000 of them) for runs – but get them wrong and you're out. Your Mac keeps the scorecard with teams it drags up from somewhere (it has a penchant for Leicester), or you can create your own. An animated umpire with 1930s glasses signals your fours and sixes, and gives you a stern finger when you're out. Genuine commentary clips celebrate your runs and sympathise with your failings. Excellent fun.

Smart, classy and clear design, masses of reference data, lots of cool things – *Cricket* is really quite impressive stuff. A search facility for the data, and zippier access to it, would have been nice – and a "Laws of the Game" section might have been a good addition too. But overall, this is a witty and highly enjoyable piece of multimedia that fulfils all its promises, if sometimes a tad slowly. So, in batting terms, who would it be? Not a robotic Don Bradman, a spectacular Gilbert Jessop, or an imperious Viv Richards. It's amusing, stylish, splendid, and just occasionally careless. Why, it's David Gower...

ROB AINSLEY

Moving Pictures

Dominic Cork's hat trick against the Windies is here on video and the quality is good.



Cricket

A great CD-ROM jam-packed with information and entertainment. Hits the sweet spot and streaks away for four.

MF rating 82%

PRICE	£39.99	**ON SALE**	Now	**CONTACT**	Ablac on 01626 332233	**E-MAIL**	sales@ablac.co.uk
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256 •		
Extras: 2x speed CD-ROM							

Golf Tips: Breaking 100

This new release claims to help you crack three figures in the endless search for the perfect round. Plus-fours and odd glove at the ready, take a swing to see if it works...

Golf inspires extraordinary devotion, and everyone wants to improve their score. You'll find a bunkerful of books and magazines promising to do that for you, and many sell by the golf-trolley-load. One such magazine is the American *Golf Tips*. And CD-ROM was, two years ago, the hot medium. "Aha!" somebody thought, "let's bring out a CD-ROM with golf material from the magazine". But what can a CD-ROM do that a book or magazine can't?

Not much, is the answer here. *Golf Tips* is absolutely packed with detailed tips, which really do work. (For what it's worth, I did manage to half-cure a long-standing hooking problem after studying the relevant sections of the disc.) Everything is covered, from the basics of how to grip the club, right up to putting. And American teaching methods take account of the fact that learners often need things spelling out v-e-r-y s-l-o-w-l-y step-by-step – which is meant as a compliment. There are even three options to run the program depending on whether your Mac is short on RAM, high on RAM, or a PowerMac – though these days 8Mb is only just high enough to qualify as "low"!

The simple problem is this. What we have is a very good golf tips book that's been put, more or less page-by-page, onto a CD-ROM. And that makes for frustrating use – *Golf Tips* is all too often like using a book that takes several seconds to turn each page. There are a few video clips of swings and putting actions, which, if you're a devotee, you can study frame-by-frame, but most of the sections work on short text and still pictures (and sometimes the stills are arranged in a sort of flick-book sequence). There are also some sequences of teachers "walking" on to the screen and "talking" to you, though in very fuzzy animation.

Like a beginner who takes six to get to the fairway and then sinks a 12-yard putt, this CD is almost redeemed by the final section "Playing the Hole – Strategy", but not quite. Here you "play" one hole, selecting clubs and deciding whether to aim for the hole or the fairway. You can read advice and click if you want to have more spoken to you (according to your standard and how lucky you feel), and also see your shots in passable video (though the video may not work completely on a more modest Mac, as the "Read Me" warns – it didn't on a Performa 630). However, this didn't have the must-play-again feel of many golf sims (such as *Links Pro*). If only *Golf Tips's* advice could be linked into one of them!

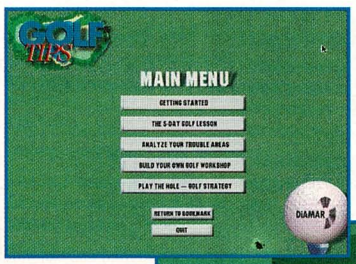
In a crowded golf technique market, it's hard to see what this CD-ROM does that a printed equivalent wouldn't do for you more conveniently and just as effectively. After all, you can take a book to the driving range, green or local park, but you can only take your Mac if you've got a PowerBook – and the battery probably wouldn't last you long enough, anyway.

ROB AINSLEY

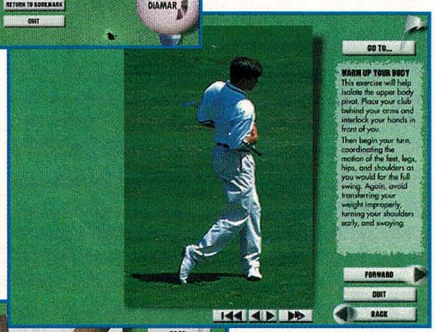
Golf Tips Breaking 100

Great content with a lot of good tips, but a computer screen isn't the place for it.

MF rating 69%

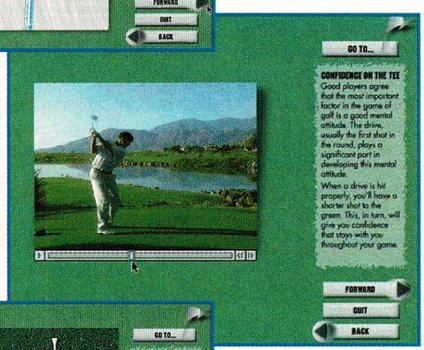


Golf Tips's main menu looks like a book contents page: functional design, page-by-page sequence.

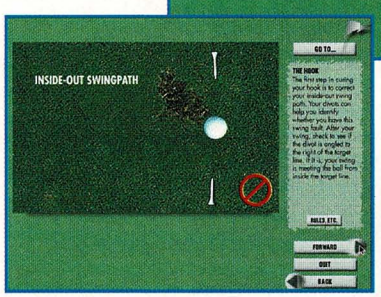


The information is presented in bite-size pieces for easy digestion.

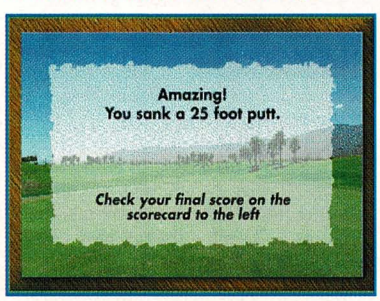
The program starts right from the basics – even something as apparently simple as gripping the club correctly.



There are some video sequences, which played reliably on a modest Mac. Nice to be able to watch the pros frame-by-frame.



Just about every problem beginners can think of is taken apart meticulously.



The most interactive section is where you "play" a hole with advice from your tutors. My giant putt couldn't rescue a poor hole.

History to a tee

Though Scotland is the traditional home of golf, games very similar to it were played on frozen canals in 15th-century Holland, and even in Roman times. The Scots banned it in 1457 because it interfered with archery practice, threatening the country's defensive capabilities.

PRICE	£27.99	**ON SALE**	Now	**CONTACT**	Sierra on 0118 920 9111	**WEB SITE**	http://www.sierra-online.com/
MAC	**Processor:** 68040 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256 •		
Extras: 2x speed CD-ROM drive.							

The Time Warp of Dr Brain

Hold on to your brain, as you take a rollercoaster ride through history with the world's maddest scientist.

MACFORMAT Classic

Are your kids addicted to cartoons? No, scratch that. Are *you* addicted to cartoons? You know the stuff – *Pinky and the Brain, Ren and Stimpy, The Simpsons?* If the answer's "yes", you're going to love *The Time Warp of Dr Brain* – lashings of sarcasm and cool graphics, and that's just the menu bar. If you get bored with playing with that, developer Sierra has thoughtfully included 600 puzzles for you to tackle.

The scenario is this: you've got to navigate the cackling and ever-so-slightly-Germanic Dr Brain through ten periods of time. Each period, from the amoeba of the "Primordial Soup" to the isolated brains of advanced civilisation in "Brain Waves", contains a selection of puzzles on three skill levels: Novice, Expert and Genius. You've got to complete enough of the puzzles in each section – at any skill level – to fill your Time Vial, and bring the old boy another step closer to home. You can mix and match skill levels at will – the higher the level, the fewer puzzles necessary to fill the Time Vial.

It's up to you to twist and turn the individual sections of spacecraft into place before you're ready to fly away.

According to the booklet that comes with the software, this is an edutainment package. Rather than pumping your offspring full of facts, however, it concentrates on keeping them highly entertained while sneakily developing their more cerebral skills. Sierra calls this the theory of "Multiple Intelligences", claiming that *Dr Brain* aims to develop linguistic, logical, kinesthetic, spatial, musical, interpersonal and intrapersonal skills – a very impressive list.

So how does it manage to fulfil these grand designs? Very well, if the truth be known. It manages where so many other edutainment packages fail, scoring early success in that you won't be able to drag your kids away from it. And after all, if a package is such that your children actively want to play with it, you must be on to a winner. That said, you're only really going to win if the content of the puzzles is as good as Sierra claims it is, so what do you actually do?

Well, as you'd expect, the puzzles are all quite different. Some require you to sit and think about what you're doing, such as "Alchemy – your introduction to the Dark Ages", while others demand that you employ your reaction speed and hand-eye coordination to move objects around the screen – this is the case with the egg-shuffling "Lizards and Eggs". You'll need a combination of tactics and hand-eye coordination in "Primordial Soup", as you try to ensure that your amoeba take over the swamp, in a battle to the death with some mean-looking yellow opponents.

All the way through these puzzles, you'll be chided along by the intelligent commentary of Dr Brain. His comments are cleverly constructed, ranging from the utterly bizarre "I love boneless pork butt, don't you?" and the rather dubious, semi-Teutonic "Are you talking to me?" De Niro impression, to "Your reptilian complex has linked together all the facets of your egg hatching behaviour". There's also a peppering of words that will be new to your children and keep them asking questions.

Bear in mind, however, that if you mess up, you're in trouble big-time. The sarcastic tongue of Dr Brain can be a bit disheartening at times and the carnage it's possible to create on-screen – entirely by accident, of course – is a touch dramatic. Our favourites were the drowning lungfish, or the horrific car crash we managed to engineer in "Gridlock" – eat your heart out, David Cronenberg.

So should you buy this for your kids? The answer is a resounding yes – as long as they don't like their gameplay too sophisticated. It's funny, sarcastic and full of catchphrases they are sure to love. There's enough variation to keep them going a good long while and the skill increments are sufficient to ensure that they'll develop while they play. The Genius level skills will probably keep you quiet for a couple of hours, too – try "Spaceshop", but remember to catch your brain as it tries to escape through your ears.

EMMA PARKINSON

Mix and match your potions to create the colour you desire in Alchemy and get enough points to fill your Time Vial.

Below: In Gridlock, you guide your car around the course by setting "road signs" along the way. It's trickier than it sounds.

Life's tough as an amoeba – there's always something out to get you.

Challenge the logic of Dr Brain. From amoeba to the highest form of life – you've travelled a long way.

There's more...

Also available in this series is *The Lost Mind of Dr Brain*. We reviewed it back in MACFORMAT 43, where it scored an impressive 92%. If you missed that issue, details of how to get back issues are on page 144.

The Time Warp of Dr Brain

Insane, hilarious and educational – this is a gripping piece of mulitmedia. What more could you want?

MF rating 90%

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ALL PRICES SUBJECT TO AVAILABILITY AND PRICE FLUCTUATION

PRICE	£24.99	**ON SALE**	Now	**CONTACT**	Macmillan Interactive Publishing on 0345 697008	**WEB SITE**	http://mip.macmillan.co.uk/
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.0 • **HD space:** 7Mb • **Screen:** 640 x 480 • **Colours:** 256 • **Extras:** 2 x speed CD-ROM drive		

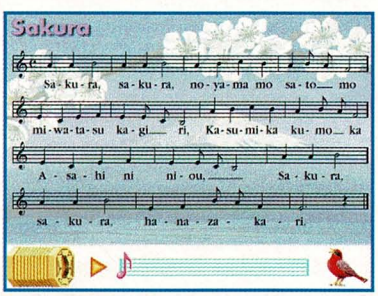
Children's Songs of the World

A merry romp around the world of music, or an international collection of depressing sea shanties? We set sail on the latest "musical learning experience"...

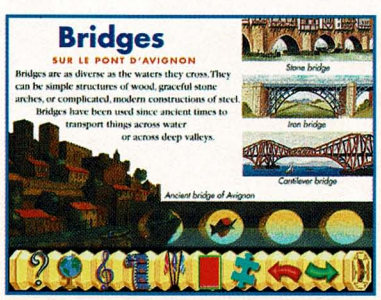
Children enjoy singing. Largely this takes place in expensive restaurants, crowded rail carriages and when you're trapped in a car on the M6 with three of them and a blissfully deaf grandparent. There's nothing quite like the sound of angelic voices lifting toward the heavens, but if the repertoire of your seven-year-old is starting to sound a little tired, this could be the disc that saves you ever having to endure another chorus of *London's Burning*. So does it hit the right note?

After the simple installation, you are – predictably enough – presented with a map of the globe. Simply passing the mouse over it produces a list of the songs available – sweep the mouse across, say, Europe and an enlarged map pops out. All you need to do to access a particular song is click once on its title. This interface causes problems if you try to use the spoken "help" system – sweeping the mouse across the screen (easy to do accidentally, thanks to the lamentable speed at which the disc runs) causes a mind-boggling cacophony of voices and instructions to assault your ears.

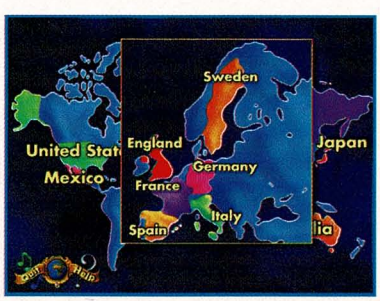
That aside, you're now ready to shock the world with the power of your vocal chords – and if this is your intention, it's probably not worth picking Japan. A single click on "Sakura" and you're treated to a calming song about flowers, which may entrance Japanese children (though it's unlikely), but will probably leave your offspring yawning, confused and reaching for the **Quit** button. Even with your help they might not understand the words. You will struggle to pronounce them, and your four-to-eight-year-olds (the recommended age range) really don't stand a chance, particularly when the English translations are impossible to fit to the music. Sadly this is the case with so many of the songs: not only are they extremely difficult to pronounce, but their translations are impossible to sing. Whether the song is about a depressed Russian woman, missing her loved one in battle, or a depressed Scandinavian fisherman, missing his loved one who is stuck on *terra firma*, this disc is short on real entertainment – and this, coupled with some beautifully drawn but tedious animations, is not likely to hold your children's attention.



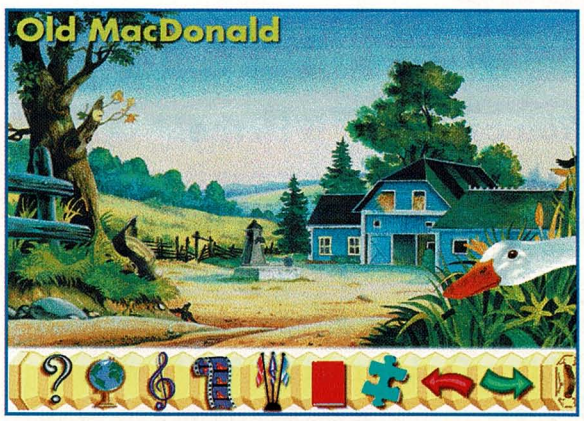
The English translations don't rhyme or scan, and they're on a separate page.


Bridges
SUR LE PONT D'AVIGNON
Bridges are as diverse as the waters they cross. They can be simple structures of wood, graceful stone arches, or complicated, modern constructions of steel. Bridges have been used since ancient times to transport things across water or across deep valleys.
Stone bridge
Iron bridge
Cantilever bridge
Ancient bridge of Avignon

We wanted to dance sur le pont d'Avignon, but now we know how it was built, too.



The map of the world is extremely easy to read, even using a 14-inch monitor.



This'll be a traditional English farmhouse then. If you look carefully you might just make out John-boy Walton in the background.

Well, that's the "tainment" part discounted, so what about the "edu"? After all, just because this title isn't a bundle of laughs, doesn't mean it's not going to be of value for your little ones.

The sleeve notes claim to give you "a lively historical and cultural insight into each country of origin". Well, if your idea of a cultural insight into Australia is a page of bland notes about birds, you'll probably be satisfied. If you were expecting a little more geographical content – maybe a mention of Ayer's Rock or even a gum tree – you're going to be disappointed. Equally, the puzzles – join the dots, arrange objects into a song-based order and the like – will be tricky for your four-year-old, but will probably bore your eight-year-old to tears.

Finally, if you're of a sensitive disposition, don't click on England. Lack of localisation is one issue, but what Macmillan Interactive has done to Old MacDonald really shouldn't be witnessed by young children. MacDonald himself appears to live in a New England farmhouse that would put the Waltons to shame, and apparently he keeps "roosters". Joking aside, assuming that the factual content of this disc is the same across the board, you can be pretty sure it's not painting the most reliable global picture for your kids.

This disc is ultimately dull. It's safe to say that your children will already be familiar with about half of these songs, while the rest will remain a complete mystery to them – even with your help. A handful of songs for £25? Buy them a couple of music CDs and a colourful atlas instead. **EMMA PARKINSON**

Building bridges

Take a look at the bridge from the French section of the CD – oddly enough, it's exactly the same as our famed Iron Bridge in Shropshire. "Cultural insight into each country"? Dear oh dear oh dear...

Children's Songs of the World

Short on facts and long on boredom, only worth considering if your kids are real music enthusiasts.

MF rating 53%

PRICE	$39	ON SALE	Now	CONTACT	Bungie Software in the US on 00 1 312 563 6200	WEB SITE	http://www.bungie.com/
MAC	PowerMac only	POWERMAC	Processor: any • RAM: 8Mb	REQUIRES	System: 7.5 • Screen: 640 x 480 • Colours: 256 • Extras: 3D graphics card capable of accelerating QuickDraw 3D, PCI expansion slot (see "Limited edition" box)		

Weekend Warrior

You can't buy it in the shops or even by mail order... So just who's going to get the chance to see this Gladiators-style 3D-rendered action-fest? Mike Goldsmith, that's who.

Cowboy's collected the seeds from the Topiary. Time to find the watering can and avoid the killer carrots. Of course.

Running Boy looks like he's off a schoolboy's duffle bag. Use your cursor keys to spin past him onto other options.

ON THE CD

Playable demo on the MACFORMAT Bonus CD

Ever wanted to beat up a robot spider with a carrier bag? How about run around the house from *Psycho* with only a side of beef to protect you? Or perhaps just mosey on down to Tombstone City for a face-off with a cowboy intent on clubbing you into next week with a hobby horse?

Oh yes, Bungie Software is back. The techno-boffins behind the infamous slug-fest that was *Marathon* have decided that the 3D action title needs some "fun" injected back into it. Thus the long-awaited *Weekend Warrior*, with the *Doom*-meets-Red-Nose-day scenes of carnage just described. But where can you buy it?

Sorry, you can't. Or rather, you can if you buy a 3D graphics card capable of accelerating your QuickDraw 3D system (see the "Limited edition" box for details). For the everyday Mac owner without the fire-power required to feed this memory-gobbling beast of a game, *Weekend Warrior* will remain out of reach.

Unfair? Certainly – but there's a reason. Rather than the bit-mapped sprites of old, Bungie has plumped for true 3D effects. Texture-mapping, Gouraud shading, alpha transparencies, infinite camera perspectives... all of which translates into retina-straining new vistas of gameplay for the Mac.

The idea is simple. Take eight surreal stereotypes (see "Meet the gladiators" below), equip each with an impractical weapon, then place them in a *Gladiators*-style set-up where they – or more to the point, you – must run around like a mad thing in search of virtual cash and prizes. With eight wildly-differing sections to complete, *Weekend Warrior* swiftly reveals itself to be a challenging game.

After choosing your warrior you can opt for network gaming (up to four players can play, preferably over an AppleTalk system), and then brave the gladiatorial arena. It exists somewhere in the vast game-playing chasm between *Supermarket Sweep* and *The Running Man*, and in it you face eight different challenges covered with what resemble giant coconut shells, only to be deviously swapped around David Copperfield-style.

With the crowd baying, and your ever-annoying host Ricardo cracking "jokes" at every opportunity, it's time to choose a coconut shell. As a beginner, with a bit of luck, you might chance on the "Pagoda" level. Sprint around this Oriental playground, smash as many Ming vases as possible in search of the gongs needed to complete the stage (you'll rack up points for both) and try not to get into a scrap

Meet the Gladiators...

Name: Shopping Bag Lady
Weapon: Gucci carrier bag made from girders.
Looks like: Ruby Wax on a lot of steroids.
Any good? Faster than Fergie in a bring-and-buy sale.

Name: The Super Fan
Weapon: One of those stupid American "football" foam fingers.
Looks like: John Belushi after a night on the ale.
Any good? Well, what do you think?

Name: Billy Horseshoe
Weapon: A hobby horse. Which is a bit strange.
Looks like: Woody from *Toy Story* with a hangover.
Any good? Quick on the draw.

Name: Sir Waka Aka Tuli
Weapon: Spear with a skull stuck on top.
Looks like: The ones in *Zulu* who weren't Michael Caine. Or Stanley Baxter.
Any good? Abnormal speed quite possibly due to voodoo sacrifices.

Name: Hull
Weapon: "Flying V" guitar. Heavy metal, geddit?
Looks like: Ginger Spice with a mohican.
Any good? You feelin' lucky, punk?

Name: Delicatessen Dan
Weapon: Giant chicken drumstick.
Looks like: Gee, those Americans can catch BSE too!
Any good? Best off leaving him behind the counter.

Name: Spaceboy Ramirez
Weapon: Cosmic battering ram
Looks like: Buzz Lightyear with the edges planed off.
Any good? Out of this world.

Limited edition

***Weekend Warrior* is designed to work best on a PowerMac with a 3D graphics card capable of accelerating *QuickDraw 3D*, to show how greatly these cards can enhance your game-playing, and encourage more people to treat their PowerMac to a card.**

Bungie is limiting the game's distribution to avoid disappointing people who might buy the game unaware of its high demands. You can't buy *Weekend Warrior* through shops or mail order dealers, but it will be included with some 3D cards as they go on sale. The only card to include *Weekend Warrior* at present is ATI Technologies' Xclaim VR card, which costs £293. Contact ATI on 01235 833666 for more details. Bungie expects more cards to offer the game soon.

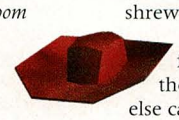
If you already own a 3D card or have an exceptionally fast PowerMac (Bungie recommends a 604e processor running at 200MHz), you can order *Weekend Warrior* direct from the US. Call 00 1 630 434 0505, or visit http://www.bungie.com/

Opening screen time and with the crowd egging you on, it's time to enter the arena. Not sure about that choice of weapon, though...

with your fellow contestants.

Now, you might think it's tough enough dodging atomic-powered rats in the "Nuclear Mine" level while delivering uranium rods, or avoiding those decidedly unfriendly alligators in the Mayan Temple on your quest for its Aztec peak. But there are also other warriors in search of glory in this particular ballpark – and even if you've refused that network option, the computer will provide more than enough opposition. Such showdowns provide the chance for a *Mortal Kombat*-style, keyboard-disintegrating slug-fest, and if you haven't picked up enough energy-replenishing hearts on your travels, it's curtains.

While you learn, the **Save Game** option is a *Doom*-style tactic to rack up high scores while missing out on levels already completed. There's no getting around it: *Weekend Warrior* is hard. Really hard. No matter how skilled you are with Super Fan's innocent-looking foam finger (see the "Meet the Gladiators" box) or how cute The Topiary Maze's mutant killer apples initially appear to be, Bungie hasn't just created a *Doom* for dangerously deranged *Ren and Stimpy* fans. It has created an absolute monster...

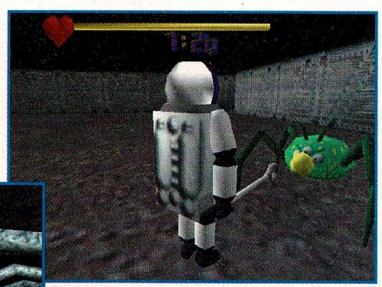


So what does it look like? Rest assured, it looks ace. You might be blessed with the hardware required to run the game, but unless you've got one helluva lot of hard disk space, *Weekend Warrior* will shake and shiver like a ZX Spectrum in a nursing home. And unfortunately, even if your Mac does have the necessary requirements, the strain on your Mac's memory means *Weekend Warrior* will still look a touch wonky. Just as well the camera angles are fantastic. That one-on-one *Doom* feel for close encounters is provided through HeadCam – viewing the action as if your own eyes were cameras. AutoCam will transform your duellings in The Haunted House into a gladiatorial combat worthy of ancient Rome, and will let you savour that hard fought victory over the Pumpkin King from any angle you damn well please. But if you're expecting the swirling vistas of *Myst*, prepare to be disappointed. *Weekend Warrior* is on a par with the best PC 3D titles, but don't expect your Mac to transform into a Nintendo 64 overnight. Graphics are polygonal at best, the arenas themselves are sparse, and if the "Old West Town" is meant to be a recreation of Dodge City, I'll eat my stetson.

But is this really a problem? *Weekend Warrior* is a game addict's fantasy. Riddled with tumultuous gameplay and fired by that 3D technology, it effortlessly replicates your every move. Okay, there are no gore-fests on offer, but perhaps with a shrewd eye to the family audience, Bungie has spawned a game for the imagination rather than the horror movie anorak. Where else can you fight punk-rockers in an attempt to avoid a vampire bat? *Weekend Warrior* will get you chuckling as you whack your way to victory, but, sadly, the fight scenes are stilted, with only three moves to perform in the clinch, and your frantic key-tapping produces less than satisfying carnage. If you want a frenetic 3D beat-'em-up, look elsewhere.

So, who does *Weekend Warrior* appeal to? The *Doom* freak who won't have to blank the screen when innocent children come to see what all the shouting is about? Maybe. *Weekend Warrior* might not be as funny as it tries to be, but the secret – as in all great games – is back in the gameplay. Searching for a mere four self-destruct consoles in the *Alien-alike* "Space Station" sequence might not sound the hardest task ever set, but when you've avoided the monsters and beaten off your "fellow" combatants, there're only two minutes to find the escape shuttle and blast off to safety – and then on to your next challenge. *Weekend Warrior* is truly addictive and if your console-owning friends sneer at its less-than-frantic action, let them have a quick go. Then spend the rest of the day trying to get them off your machine.

Weekend Warrior is an infuriating game – and all that that deliciously implies. Not gory enough to be *Doom*, not mad enough to be *Peewee's Playhouse* and, most importantly, not in the shops. Thankfully, it's not lacking in invention and not easy by any stretch of the imagination. As the line is drawn between those who have it and those who can't run it, *Weekend Warrior* can look forward to cult status.



Come any closer, incy-boy, and it's spanner in the mush time... The Space Station in full.

Beat off *Weekend Warrior's* cast of characters and that place in the Hall of Fame could be yours. From the looks of it, there's not much to beat...

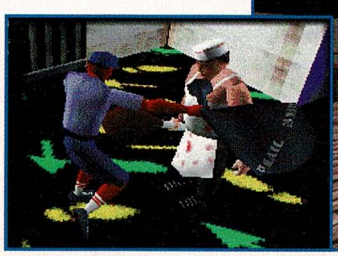
Need a make-over?

Weekend Warrior also features a **Face-Mapping** option. Load in a 64 x 64 pixel image of your face and suddenly it's you being pummelled by a jungle witch-doctor's club. Of course, you could always put in a friend's face...

ProFormance

We used Formac's ProFormance 80 3D card to play *Weekend Warrior*. At around £700, it's a pro-level card that enhances both your video display and your 3D graphics (although it doesn't include *Weekend Warrior* itself). Call Formac on 0181 533 2495 for details.

Cowboy and Sir Waka Aka Tuli in pugil stick madness! Makes Trojan and Wolf look like a couple of jessies.



Of course in Blighty, our postmen are a bit more respectful...

Weekend Warrior

Got a 200MHz PowerMac? You'll have a whale of a time. A few more games like this and everyone will be buying 3D cards...

Graphics	**83%**
Sound	**87%**
Gameplay	**84%**

MF rating 85%

PRICE	£39.99	**ON SALE**	Now	**CONTACT**	Mindscape on 01444 246333	**WEB SITE**	http://www.chessmaster.com/
MAC	**Processor:** 68040 • **RAM:** 5Mb	**POWERMAC**	**Processor:** any • **RAM:** 5Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256 • **Extras:** CD-ROM drive		

The Chessmaster 4000

Know a chess player who needs to be taught some humility? This game promises to test your skills to their limits... and then help improve them too!

Your Mac might not be well equipped to build a suspension bridge. It won't take you to Mars, or even make a cup of tea. Hell, it can't even boil water. It's a near certainty, however, that it can beat you at chess.

It doesn't matter which Mac chess game you choose, really. The shareware *GNU Chess* can thrash human opponents of exceptional skill, so why you would want anything as powerful as *The Chessmaster 4000* when chances are you can't even beat *GNU* in "Easy" mode?

The answer is simple: self improvement. *The Chessmaster* gives you a host of whiz-bang options, and best among them are the ones that will help you become a better player.

If you're a novice you can begin in *Chessmaster's* "Newcomer" mode. Here, the chess engine is toned down to the point of "artificial stupidity" and, rather than trouncing you in 11 balletic moves, your Mac will make some atrocious errors, prolonging the game to let you practice your tactical thinking.

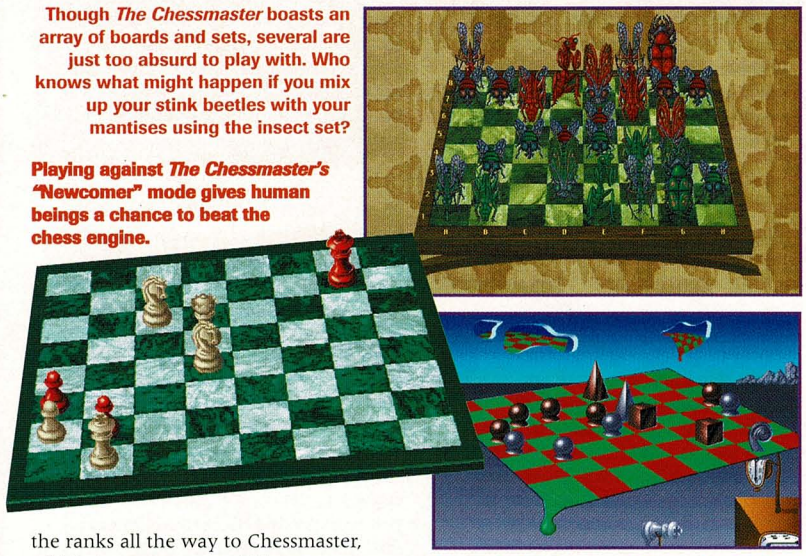
If you're a reasonably good player, you'll also be able to beat *The Chessmaster* in its "Novice" mode. Here, it plays a little more aggressively and incisively, pushing you that little bit harder. The basic difficulty levels increase up through the ranks all the way to Chessmaster, which, in our tests, could beat an average chess dabbler in 15 moves.

In addition to the eight general levels of play, *The Chessmaster* can also be set for various practice modes to help you improve your strategies against certain styles of play. For those with world ranking pretensions, it can also play in the style of some Grandmasters, so you can revel in taking Boris MacSpassky's rook or Bobby MacFischer's knight. Or get trounced.

The Chessmaster's advice panel is also great for feeding your chess brain. If you wish, it will guide you through the first dozen or so moves of a number of gambits and openings, helping you learn to anticipate and recognise structured strategies. Or, even if it doesn't, at least it will give you a realistic chance of defeating the machine.

There's a chess-playing tutorial for beginners, and you can watch 500 classic games replayed (or your own, if you've saved them). There are 11 chessboards to choose from, both 2D and 3D, plus a dozen sets of pieces – some of which are, frankly, ridiculous. What's more, you can customise your set-up to include on-screen clocks, move lists, lists of taken pieces and so on. The main let-down is the sound. Make a move and you get a preposterous and melodramatic "duh-dum" sound; we couldn't get the game's music tracks to work at all.

However, you won't be buying *The Chessmaster* for its sounds, but for the way it plays chess. Games like *GNU Chess* might be quick, easy and free, but with them the only way to improve your game is by repeatedly taking a pounding. With *The Chessmaster 4000* you can quickly learn some opening gambits and work your way up the difficulty rankings. If you're serious about advancing your chess skills, *Chessmaster 4000* is a must. **GARRICK WEBSTER**



Though *The Chessmaster* boasts an array of boards and sets, several are just too absurd to play with. Who knows what might happen if you mix up your stink beetles with your mantises using the insect set?

Playing against *The Chessmaster's* "Newcomer" mode gives human beings a chance to beat the chess engine.

Like to dabble in surreal strategies? This vaguely Dali-esque 3D board is for you!

If you like to monitor every aspect of play, you can call up all sorts of extra windows crammed with information.

The "Plain Language Advice" option can tell you which move to make next and analyse anticipated responses in plain English. Good advice is always nice.

How Champions Fare

The best human chess players can beat even the best computers. Last year, Garry Kasparov beat IBM's Deep Blue chess computer in New York. A $1.1 million rematch is set for May.

The Chessmaster 4000

Lots of distracting extras, but a super-powerful chess engine and numerous features to help you improve your play.

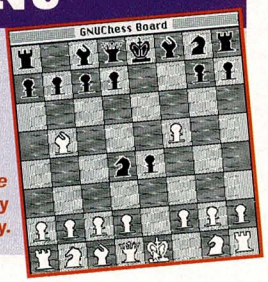
Graphics	**84%**
Sound	**48%**
Gameplay	**95%**

MF rating 86%

Chessmaster vs GNU

In a head-to-head best-of-five challenge on a Power-Mac 7100, *Chessmaster 4000* won three matches straight. The first was the hardest fought and *GNU* put up a valiant defence. It took *Chessmaster* 46 moves to break it down. The second went to 30, the third to 41.

The freeware *GNU Chess* can beat us all easily and *The Chessmaster 4000* can beat *GNU*... World domination by evil chess-playing computers is only moments away.



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* = Not yet released - **please call for availability or check web pages**

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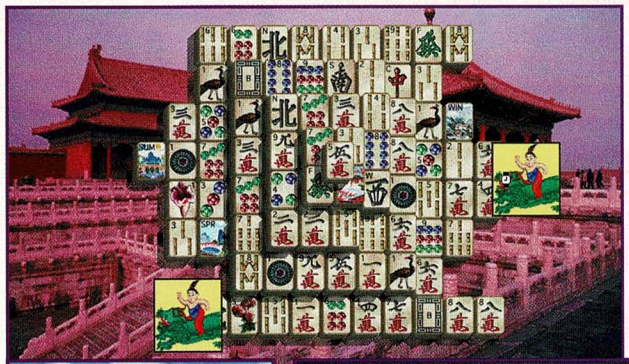
MAC **Processor:** 68LC040 • **RAM:** 8Mb	**POWERMAC** **Processor:** Any • **RAM:** 12Mb	**REQUIRES** **System:** 7.1 • **HD space:** 16Mb • **Screen:** 640 x 480 • **Colours:** 256 • **Extras:** 2x speed CD-ROM drive					

Shanghai: Great Moments

Featuring breathtaking views of Hong Kong harbour, a live games master *and* Rosalind Chao of *Star Trek* fame, this could be so much more than a simple board game. But is it?



Video clips as you match tiles are fine in principle, but they just take too long to appear, and are fairly grainy when they do.

Expert tuition on Shanghai is provided by Rosalind Chao of *Deep Space Nine* fame.

The *Beijing* game makes good use of the computer platform – each tile can be slid as well as matched.

The Chinese game of Shanghai has existed for a thousand years, and it first appeared on the Mac almost a decade ago. The problem is that it did so relatively unchanged; you might as well have been reclining under a eucalyptus tree in ancient Peking as sitting in front of a 20th-century Mac.

Great Moments is a completely different wok of noodles. It sets out to drag the ancient art of Shanghai into the multimedia age, and you soon discover that Activision means business.

Within seconds of you starting the game, on walks none other than Rosalind Chao (Keiko from *Star Trek: Deep Space Nine*) with a very welcoming message. Thus begins a tile-matching game like no other, with personal tuition, atmospheric sound (with a suitably oriental feel), and video clips.

Four different styles of play are available – the first of which, *Classic Shanghai*, you may recognise as the original version. The aim is to remove tiles from the stacked board in pairs, but only if they are "free" or, in other words, not walled in at the sides or buried. It's a mixture of skill and luck that is instantly addictive. *Action Shanghai* is very similar, but the computer holds back half the tiles and adds them as you play, making for a constantly changing game.

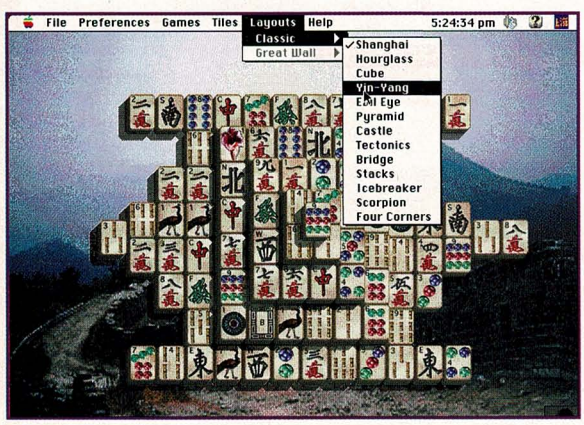
The Great Wall version makes the Mac work a little harder for its money, because every time you remove a tile from the stack, the others fall downwards. *Beijing* is similarly challenging because the tiles can slide. You can still remove them in the traditional way, but the object of this game is to amass points, and to do that you need to slide. A tournament awaits you if you're patient enough to master all four games.

Although the appeal of a board game with a multimedia tutor is obvious, *Great Moments* does concentrate more on presentation than on gameplay. Three of the four game styles it offers might be unique, and there's plenty of variation here to keep you interested, but it is disappointing that, as lovely as the animation looks on screen, it takes far too long to appear on anything less than a PowerMac with a speedy CD-ROM. Also, once you move away from the "Mah Jong" tile-set, the quality and clarity of the graphics deteriorate rapidly.

The overall result is a reasonable game, but you may find yourself switching back to the older *Dragon's Eye* – or a board and a eucalyptus tree – far sooner than you'd hope... **NIAL GRIMES**

Mah Jong

Keen on oriental games? You can tackle the century-old game of Mah Jong on your Mac in *Mah Jong Parlour*. We reviewed it in MACFORMAT 48 and awarded it 68%. For details of how to order back issues, turn to page 144.



A variety of layouts, backgrounds and game styles, including a tournament mode, add to *Great Moments*' appeal.

Shanghai Great Moments

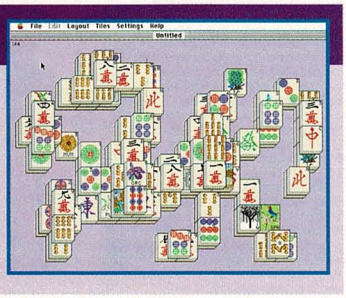
Entertaining, but the video clips are no substitute for clear tiles and playability.

Graphics	**68%**
Sound	**72%**
Gameplay	**60%**

MF rating 68%

Dragon's eye

***Dragon's Eye (Shanghai II)* is almost as old as *Shanghai* itself. The difference with this older version of the game is the style – it concentrates more on playability than presentation, with clear tiles and five game styles. Contact MacGold on 01723 582100 .**



There are five game styles in *Dragon's Eye*, and the clear tiles make it very playable.

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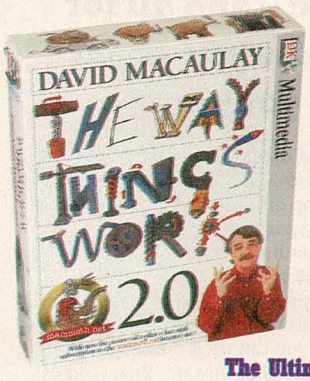
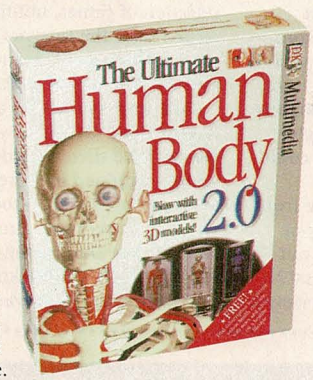


The Way Things Work 2 RRP £39.99
This CD-ROM uses animated diagrams to explain how machines work, and comes with access to an exclusive Web site and a 160-page *Inventions* book.



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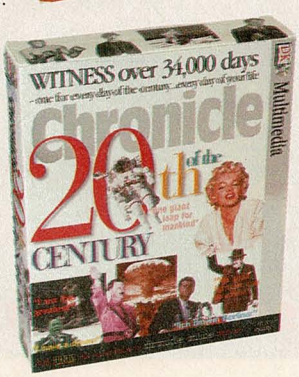

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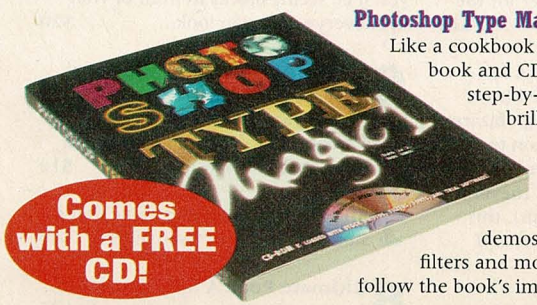
Find out everything about the most progressive century to date. Learn about the places and people that have created the world around you with this intriguing CD-ROM.



Photoshop Type Magic RRP £32.99
Like a cookbook for designers, this book and CD-ROM takes you step-by-step through 45 brilliant type tricks to create with the industry-leading image editor. The CD-ROM offers demos, fonts, images, filters and more to help you follow the book's imaginative projects.

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SHAREWARE CENTRAL

TOP 50 SHAREWARE

Shareware offers you great utilities, games, applications and more for your Mac – and all for very little cash too. Brian Smith tells you about the shareware that's really worth your dosh...

One of the great things about computers is that you don't have to have the resources of a large company to write software. Given enough time, effort and a good idea, *you* could create the next big thing.

The Internet is filled with shareware from programmers who think that their game, utility or application is just what you need – but how can you sort out the "just-what-you-really-need" from the "pretty-pointless"? Well, MACFORMAT is one place to look. In each issue we review a selection of games, utilities and other bits and pieces hand-picked from the Internet. As this is our 50th issue, we thought it would be a good idea to recap on some of the best shareware that we've featured in the magazine so far.

Our top 50 programs are split into five categories: Games, Applications, Utilities, System Enhancers and Miscellaneous. We've listed them in order of preference, with the best programs examined in more detail. You'll find everything featured here on the Cover CD too, so you can try it out for yourself.

If you've written a great piece of shareware, then send a copy to: The Disc Editor, MACFORMAT, 30 Monmouth Street, Bath, BA1 2BW. Who knows, it may even be included in our 100th issue top shareware chart!

Games

ON THE CD

Try out every piece of software mentioned here on our Cover CD.

***Doom* – the best shareware game for the Mac ever! Probably...**

1 Doom I: (shareware edition) There are many *Doom* clones available for the Mac, but the original still has that unbeatable, addictive quality. The graphics are fearsome and the sound is awesome, and while its limited 2D gameplay is becoming dated, it makes up for this by being very easy to get the hang of. This is without a doubt the best shareware game ever released. **$9**

2 Realmz: Lead your band of adventurers through the wilderness and dark catacombs in search of fame and fortune. *Realmz* blends all the elements of traditional roleplay into one easy-to-use game engine. There are six scenarios provided which you can sample before you take the plunge and register for the full version of the game. **$25**

3 Foobar Versus the DEA: A fast-paced shoot-'em-up, viewed from above. Pilot your aircraft through bizarre landscapes in a desperate mission to rescue your boyfriend Ned from the DEA. Ignoring the strange plot (never a strong point with shoot-'em-ups), this game has both beautiful graphics and well-designed levels. **$20**

4 Exile 2 – Escape from the Pit: You get the chance to first battle against, and then triumph over, evil in this superb role-playing game. **$25**

5 Skittles: A twist on the *Tetris* theme – once you start playing this game, you'll be seeing blocks in front of your eyes everywhere you look... **$20**

6 Snood: An update on the original *Space Invaders* idea. Here you've got to group the Snoods and then blast them away before they descend towards you and ultimately swallow you up. **$10**

7 Snavely!: A caterpillar game that's suitable for one or two players. **$15**

8 Ultimate Pool: A fully-functional pool sim (with cues, not water!). **$20**

9 PacMac!: Faithfully reproduced classic arcade game. **Postcardware**

10 Dome Wars: A strategy game of mayhem and destruction. **$10**

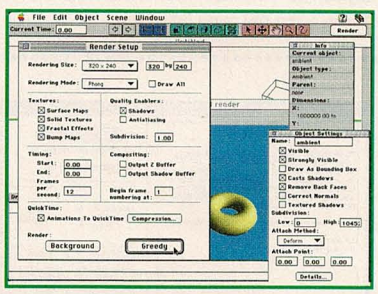
What's shareware?

Shareware enables you to "try before you buy", and it's a great idea as long as you're honest. When you get shareware, the accompanying documentation will usually tell you how much it costs and where to send the money. It'll normally cost between US$5 and $40, and when you do pay, the author will often give you something in return for registering, such as a manual or updates. Freeware is just that – free – but the author keeps the copyright.

Applications

1 GraphicConverter: This is a fabulous application that can handle graphics files in all the major formats. Not only this, but it is also a full image-editing package, complete with drawing and colour correction tools. While it can't rival *Photoshop's* filters and multiple layers functions, it is perfect for simple retouching, and a lot cheaper. **$30**

2 DOCMaker SW: The easy way to create your own documentation, guides and e-zines. *DOCMaker* provides an environment where you can mix styled text, graphics and buttons to create any kind of electronic document you need. The stand-alone document displayer includes a full index and search facility to make browsing easy. **$30**



Mechanisto – a 3D graphics package.

3 Mechanisto: A 3D modelling and animation program. *Mechanisto* provides all the functions you would expect of a commercial 3D package – including shaders with bump-mapping, as well as support for alpha channel transparency. It also enables you to render your finished creations in either Gouraud or Phong shading methods. **$20**

4 ShareDraw: A shareware version of *FreeHand*, this applications enables you to use the power of layers. **$25**

5 ePress: An extremely useful digital business card creator. **Freeware**

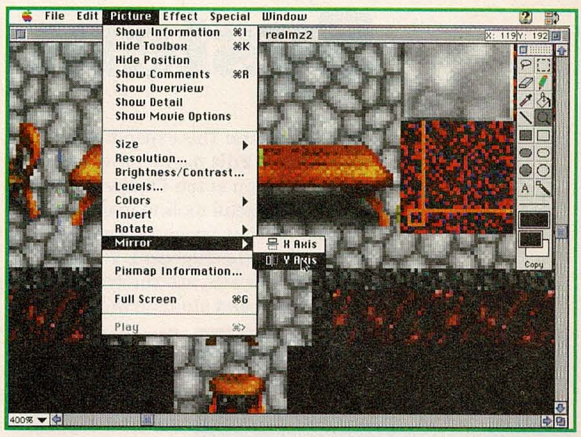
6 TimeSlice: Keep track of the time you spend on projects with this time management program. **$40**

7 SimpleCard: A simplified alternative to the widely-used application builder, *HyperCard*. **$5**

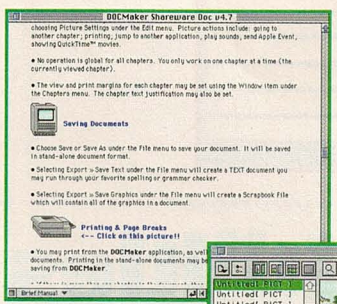
8 ScrapIt Pro: A replacement for your System's Scrapbook. **$20**

9 PhotoFolio: The simple way to create an artistic portfolio. **$50**

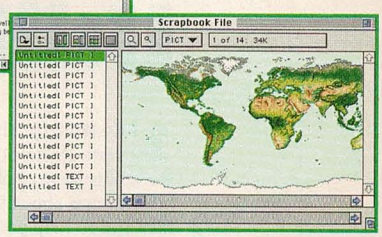
10 CD Labeller: Make professional-looking labels for CDs. **Freeware**



GraphicConverter – the shareware alternative to *Photoshop*.



DOCMaker – an impressive application that enables you to create your own e-zines, guides and ReadMe documents.



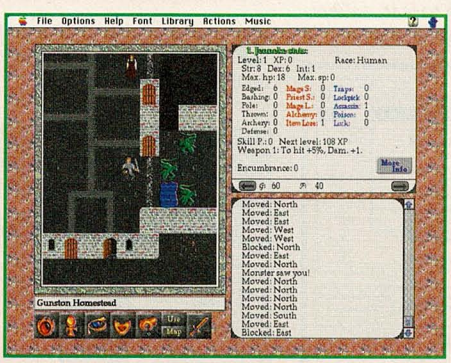
ScrapIt Pro – an improved version of the Scrapbook.

Reamlz – fight the forces of evil in this excellent roleplaying game.

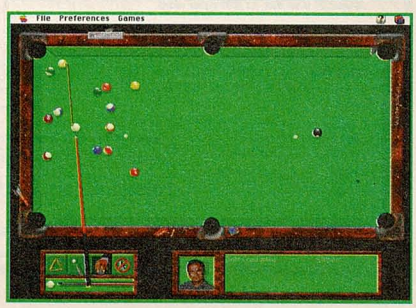
Snood – are you up to the challenge of freeing the snoods? A keen eye and quick reactions are essential here.

Skittles – a cute variation on the Tetris theme.

Foobar Versus the DEA – fast arcade action.



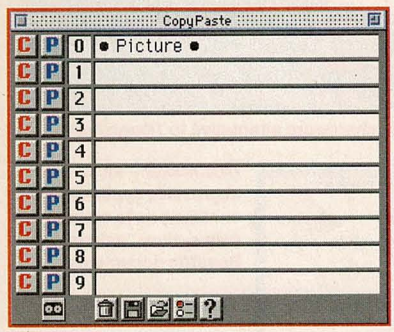
Exile – a great mix of roleplay, action and adventure.



Ultimate Pool! – yellow in the bottom right.

System Enhancers

1 CopyPaste: This expands your standard **Edit** menu, providing you with a selection of ten Clipboards, as well as a host of useful tools to manage them. You can preview images and sounds directly from the Clipboard, and your Clipboard contents will survive through both Restarts and Shutdowns. **$20**



CopyPaste – complete with a floating palette to help you manage the extra Clipboards it creates for you.

2 Default Folder: No longer will you have to search through your hard disk to find the right folder every time you save or load a document. *Default Folder* enables you to select a default folder for each of your applications and provides a set of functions that make it easier to jump between your most frequently used folders. Very handy. **$25**

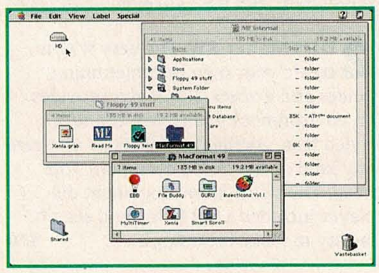
3 Snitch: This improves your Finder's **Get Info** function by listing a selection of extra information about your disks and files. The extra information it enables you to see is tacked onto the side of the standard **Get Info** box and is easy to remove if you want to. **$20**

4 Finder Options: Enable the hidden functions in System 7.5, such as deleting files without first having to drag them to the **Wastebasket**. **Freeware**

5 Glidel: Drag-and-drop icons with a selection of useful menus. **$25**

6 Greg's Buttons: Beautify the Mac's Finder with some of these gorgeous 3D buttons and check boxes. **$15**

7 Smart Scroll: Give proportional slider boxes to all your applications –



Aaron – the old, new interface.

Utilities

1 File Buddy: This provides you with a host of useful features such as the ability to get hold of in-depth information about files, to find invisible files and to help you clean out your Preferences folder. This is the perfect application to use when clearing up after sloppy program installations. **$25**

2 Disinfectant: This is an extremely useful utility that protects your Mac from viruses by first detecting infected files and then curing them. It can even install an Extension into your System Folder to protect against viruses automatically. This latest version can recognise all current Mac viruses, and you shouldn't be without it. **Freeware**

3 SCSIProbe: SCSI problems can be a real pain, particularly if you have a great many devices connected to your Mac. If one is incorrectly connected or has the same ID number as another device, you're soon going to start suffering from crashes. *SCSI Probe* scans the SCSI chain, listing everything you need to know about the connected devices. It's a very useful aid if you're diagnosing problems, and one of the first utilities you should look to if you start suffering from inexplicable crashes. **Freeware**

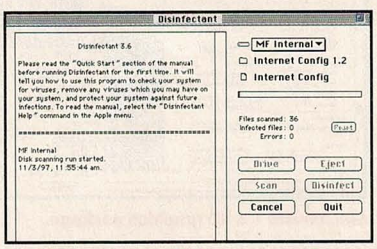
4 PrefKiller: You can clean up your Preferences folder by checking a list of the preferences files you've got against your existing applications. Very useful if you're not sure what to delete. **$7**

5 MacErrors: Discover the secret and arcane meanings of all those error messages you're plagued with. **$10**

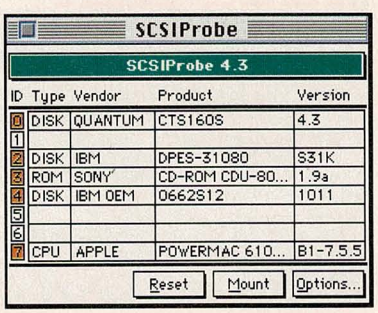
6 GURU: Learn how your Mac's memory is really configured and what your upgrade options are. **Freeware**

7 Snapz Pro: Capture your own screen shots from within any application or game. **$20**

8 Speedometer: This enables you to discover just how fast your Mac is really travelling. **$40**


Disinfectant
Disinfectant 3.6
Please read the "Quick Start" section of the manual before running Disinfectant for the first time. It will tell you how to use this program to check your system for viruses, remove any viruses which you may have on your system, and protect your system against future infections. To read the manual, select the "Disinfectant Help" command in the Apple menu.
MF Internal
Disk scanning run started.
11/3/97, 11:55:44 am.
MF Internal
Internet Config 1.2
Internet Config
Files scanned: 36
Infected files: 0
Errors: 0
Stop
Drive
Eject
Scan
Disinfect
Cancel
Quit

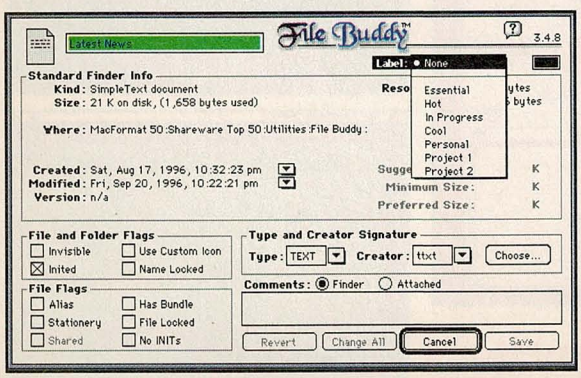
Disinfectant – essential virus protection.



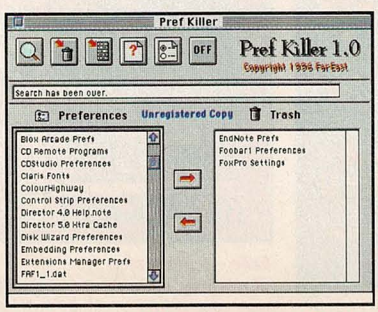
SCSIProbe – simple and extremely handy.

9 SysCompare: Help in the struggle to keep your System Folder tidy. **$5**

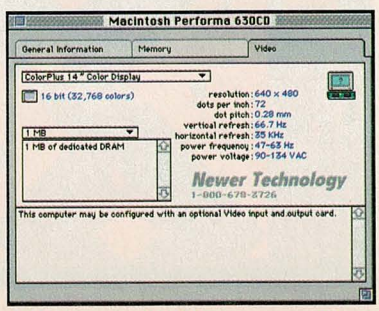
10 Synchronize! Pro: Synchronise the contents of two Macs' hard disks with this handy utility. **$30**



FileBuddy – invaluable help when it comes to managing your files.



PrefKiller – get rid of any unwanted Prefs.



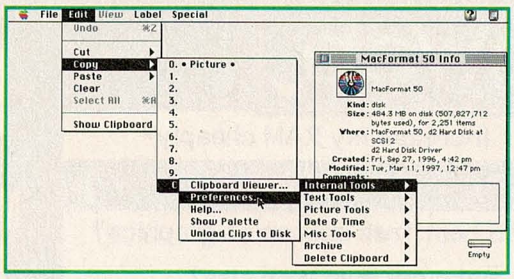
GURU – a complete Mac memory guide.

change the size of the scroll box to represent the amount of document on view. $12

8 Aaron: Pretend to be Jeff Goldblum in *Independence Day* and give your Mac the "I've already got System 8" look. $10

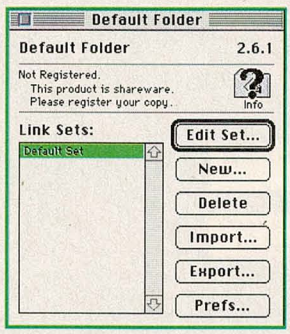
9 Program Switcher: Switch quickly between different programs using hotkeys. $10

10 AMICO: Format the order of your Apple Menu Items folder. $10

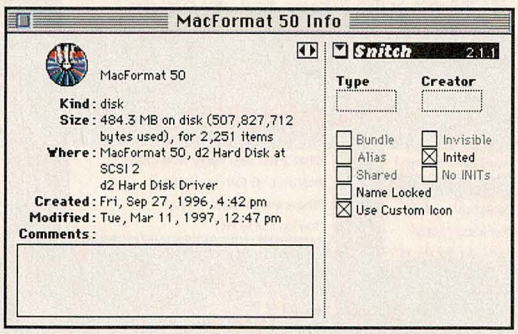


CopyPaste – adds useful functions to your **Edit** menu.

Greg's Buttons – recolour your Finder...



Default Folder – you'll never have to search through your hard disk for that special folder again.



Snitch – get your hands on more information than you ever wanted.

... and add some impressive 3D buttons.

Miscellaneous

1 Smile: The perfect application for relieving stress. You can take out your anger on a smiley face using a variety of methods including a laser, a blender and a hand gun. More methods of destruction are available when you register. It's very therapeutic, and should be available on the NHS... $12

2 Knot: This enables you to create beautiful designs. Simply select from a range of texture options and by editing a mathematical formula, your Mac will create images of complex knots, which you can even animate. Don't worry about the complex maths that this involves, the documentation explains how to create interesting effects and you can automatically select basic forms using the Magic Knot menu option. $20

3 About This Particular Mac: This professionally produced e-zine covers all Mac-related topics. It has been created using *DOCMaker* (see the Applications section) and contains features, reviews and a readers' e-mail page, as well as editorial comment for a different view on the current state of both Apple and the Mac. Freeware

4 Real Domino Effect: Particularly handy if you can't be bothered to set up 1,000 dominoes by hand. $10

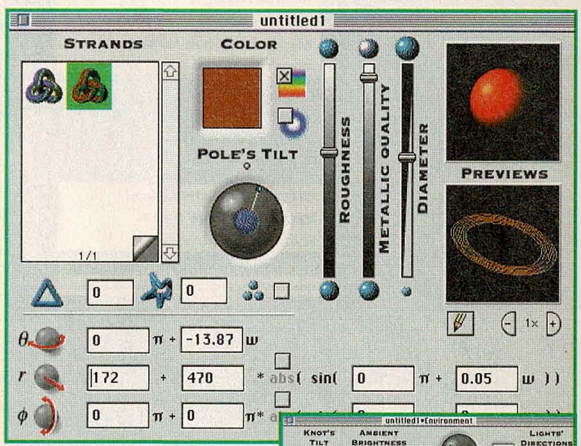
5 Poetry Ink: An e-zine which enables you to showcase your poetry to a large audience. Freeware

6 Electric Poet: Turn your Mac into an automated Lord Byron. $5

7 Ambiance Distribution: Relax with the sounds of nature, chilling out to the chorus of birds chirping or the "plip-plop" of running water. Freeware

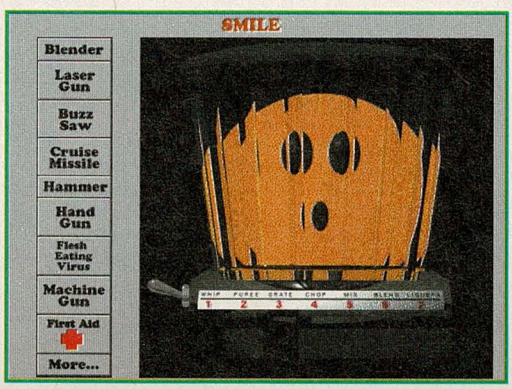
8 Bird Songs: Your own rendition of the dawn chorus. Freeware

9 QuoteMan: An almost endless supply of irrelevant quotes. $5



Knot – create intricate knots with this mathematical utility, it's pointless, but it's beautiful!

10 Insult Generator: Install this and you need never be at a loss for words again, thou tickle-brained reeling-ripe harpy... Freeware

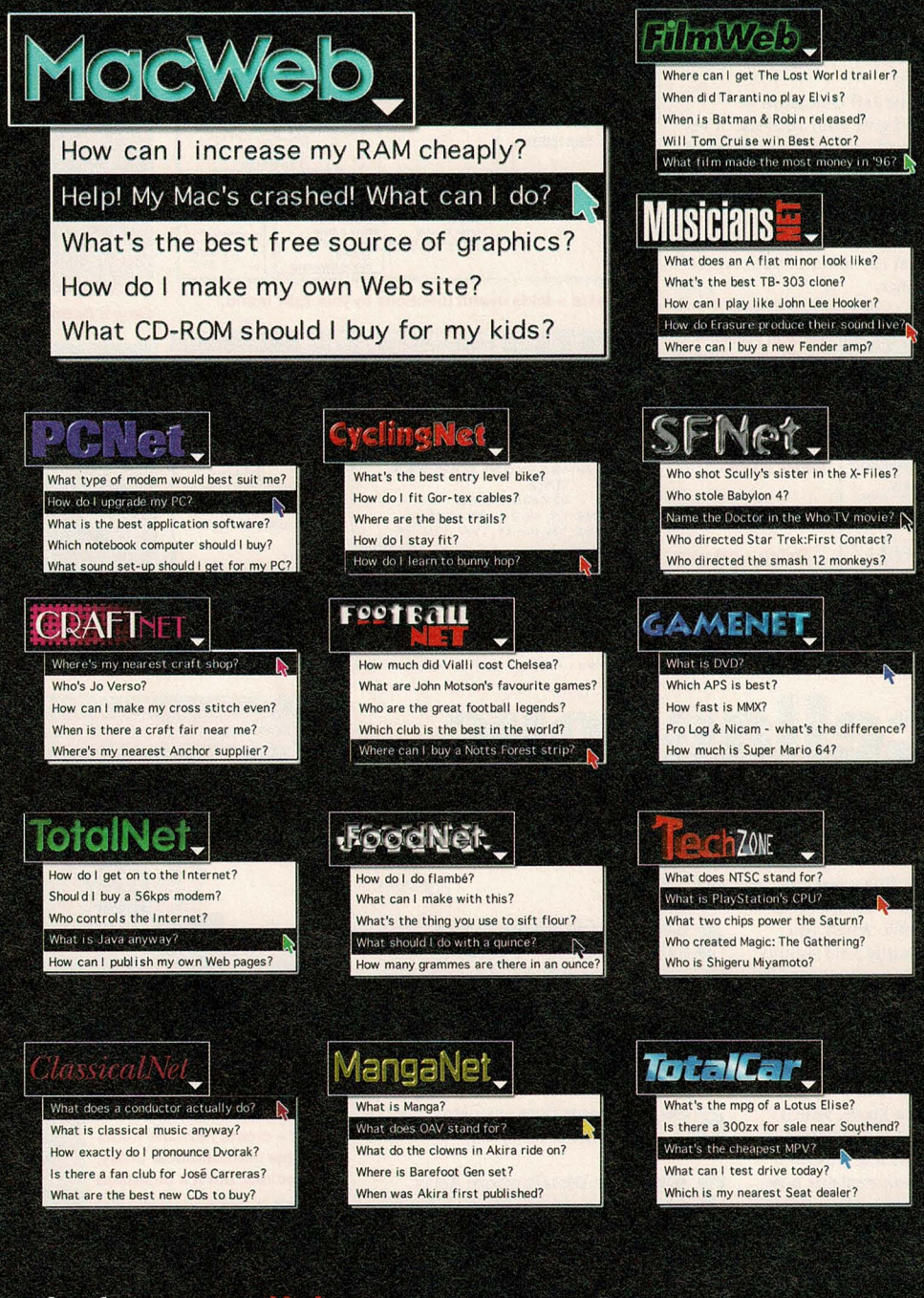


About This Particular Mac – by Mac users, for Mac users.

Smile – just what the doctor ordered for relieving all that pent-up office stress.

http://www.futurenet.com

Hits the Internet on April 14th


MacWeb
How can I increase my RAM cheaply?
Help! My Mac's crashed! What can I do?
What's the best free source of graphics?
How do I make my own Web site?
What CD-ROM should I buy for my kids?
FilmWeb
Where can I get The Lost World trailer?
When did Tarantino play Elvis?
When is Batman & Robin released?
Will Tom Cruise win Best Actor?
What film made the most money in '96?
MusiciansNET
What does an A flat minor look like?
What's the best TB-303 clone?
How can I play like John Lee Hooker?
How do Erasure produce their sound live?
Where can I buy a new Fender amp?
PCNet
What type of modem would best suit me?
How do I upgrade my PC?
What is the best application software?
Which notebook computer should I buy?
What sound set-up should I get for my PC?
CyclingNet
What's the best entry level bike?
How do I fit Gor-tex cables?
Where are the best trails?
How do I stay fit?
How do I learn to bunny hop?
SFNet
Who shot Scully's sister in the X-Files?
Who stole Babylon 4?
Name the Doctor in the Who TV movie?
Who directed Star Trek:First Contact?
Who directed the smash 12 monkeys?
CRAFTNET
Where's my nearest craft shop?
Who's Jo Verso?
How can I make my cross stitch even?
When is there a craft fair near me?
Where's my nearest Anchor supplier?
FootBall NET
How much did Vialli cost Chelsea?
What are John Motson's favourite games?
Who are the great football legends?
Which club is the best in the world?
Where can I buy a Notts Forest strip?
GAMENET
What is DVD?
Which APS is best?
How fast is MMX?
Pro Log & Nicam - what's the difference?
How much is Super Mario 64?
TotalNet
How do I get on to the Internet?
Should I buy a 56kps modem?
Who controls the Internet?
What is Java anyway?
How can I publish my own Web pages?
FoodNet
How do I do flambé?
What can I make with this?
What's the thing you use to sift flour?
What should I do with a quince?
How many grammes are there in an ounce?
TechZONE
What does NTSC stand for?
What is PlayStation's CPU?
What two chips power the Saturn?
Who created Magic: The Gathering?
Who is Shigeru Miyamoto?
ClassicalNet
What does a conductor actually do?
What is classical music anyway?
How exactly do I pronounce Dvorak?
Is there a fan club for José Carreras?
What are the best new CDs to buy?
MangaNet
What is Manga?
What does OAV stand for?
What do the clowns in Akira ride on?
Where is Barefoot Gen set?
When was Akira first published?
TotalCar
What's the mpg of a Lotus Elise?
Is there a 300zx for sale near Southend?
What's the cheapest MPV?
What can I test drive today?
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Official Playstation Magazine
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GamesMaster
PC Gamer
Sega Power

CRAFT
Celebrations in Cross Stitch
Cross Stitcher
Cross Stitch Collection
Machine Knitting News
Needlecraft
Quick & Easy Cross Stitch
Cake Decoration Monthly
Needlework
Sew Today
Cake Baking
Good Woodworking

MUSIC
The Mix
Future Music
Keyboard
Review
Total Guitar
Guitarist
BassistGuitar
Techniques
Hip Hop Connection
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Classic CD

SPORT
Cycling Plus
Mountain Biking UK
Mountain Bike Pro
Total Football
Yachting Today

ENTERTAINMENT
Arcane
SFX
Total Film

THE CHOOSER

MACFORMAT'S comprehensive, up-to-date buyer's guide to Mac-related products that are worth your money, based on our own independent, authoritative tests.

MACFORMAT advice: Mac compatibles 122
Cut-price copies or machines to be reckoned with? If you're thinking of buying a new Mac, should you consider a clone or insist on a "real" Apple-branded Mac?

Complete guide to Mac models 124
What processor is in your Mac? Can you run the latest software? Check here!

The MACFORMAT Buyer's Guide 130
The best Mac buying guide, based on our genuine independent tests.

How to be a smart buyer 130
Advice on your rights as a buyer, whether you shop by mail or in person.

Product News 132
Information on the very latest product releases and upgrades.

Mac user groups 140
Want a helping hand or just a chat? Contact other Mac enthusiasts near you.

Free Reader Ads 142
The best and biggest free marketplace for pre-loved Mac kit. ➤

Bring on the clones

Are Mac compatibles just second-rate cut-price versions of the real thing, or are the clone makers showing Apple how to do more for less? Rod Lawton tries to separate fact from fiction...

If you were thinking of buying a new Mac, you might have been surprised when Apple decided to license its OS and hardware to third-party manufacturers. Apple Macintoshes had traditionally been expensive, so any price reduction was going to be welcome. But then the quality of design and construction of Apple's machines had always been first class – were you going to have to start putting up with plasticky "copies"?

And just how "compatible" is compatible? If you're familiar with the ways of the PC world, you'll know that a plethora of different suppliers, manufacturers and competing standards has led to inconsistencies, incompatibilities and other problems. Could this happen to the Mac? And will the clone makers still be around this time next year?

Only skin deep?

One of the first questions you're likely to ask is, "Are Mac clones simply rebadged Apples?" No, they're not. They are designed, manufactured and assembled by third-party companies. There may be some shared components – for example, Motorola's StarMax range uses the Tanzania motherboard design that appears in some new Macs – but beyond that the similarities are few.

A Mac compatible is not just a reboxed and rebadged Apple, which is both good news and bad news. It's good because it means that Apple hasn't been charging you over the odds for its hardware. It's bad news, though, because it means you can't pick up "real" Apple Macs at "compatible" prices.

That's not to say that compatibles are inferior, though – they're just different. It may be that the combination of prices, features and specifications you are shopping for is met by an Apple Mac. Equally, a Mac compatible could come closest to what you need, and that should be the basis on which you make your choice.

Just like an Apple? Motorola's StarMax range uses the Tanzania motherboard design common to some new Macs.

Will Mac clones work just like "real" Macintoshes, even down to running all Mac software, all the time, without any incompatibilities? Well, so far, so good in the tests we have carried out.

100% compatible?

Are clones really 100% Mac-compatible, or are you going to install an application one day and find it won't work? So far, in all the tests we carried out on clones, we haven't found one instance of incompatibility. Not a sniff.

That's not down to luck. It's because of the terms of Apple's licensing agreement. The clone makers have to submit finished machines to Apple for approval – without approval, they don't reach the market. Apple, after all, has to protect its brand as well as simply make money from it. If clones weren't 100% Mac compatible, the brand's value would diminish enormously, and so would Apple's resultant revenues.

It's sound commercial sense on Apple's part, and it means if you are buying a clone, you needn't worry that you are buying an inferior copy of a Mac. What you are buying is simply a Mac that someone else has made.

What about the quality?

Apple Macs have always featured elegant design and excellent build quality. Can you say the same about the compatibles? After all, when you buy an Apple Mac you are buying its engineering quality as well as its OS.

True, but none of the compatibles we have seen so far has given us cause for concern about either build quality or reliability. Even Power Computing's plastic-cased entry-level models are perfectly sturdy workhorses. And Apple doesn't have a monopoly on clever design – for example, the Umax Apus 2000/166, reviewed in MACFORMAT 47 (and rating an impressive 89%), was praised for the slickness of its upgradable daughterboard design. It also came with a steel chassis and a blinding turn of speed, all for a whisker under £1,000.

As for compatibles' long-term reliability, well, it's too early to tell, but Umax is confident enough about its Pulsar 200 to offer a two-year warranty. This machine is also faster (for graphics), better specified and cheaper than a PowerMac 9500/200. Motorola provides a *five-year* warranty with its compatibles.

Corner cutting?

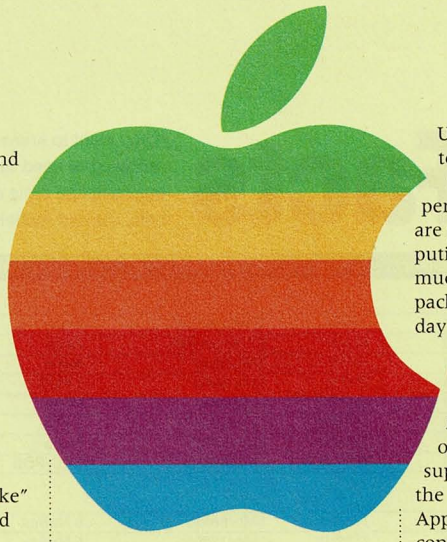
So, if Mac compatibles are just as

well-specified as their Apple counterparts, well-engineered and backed up with excellent warranties, how can they work out cheaper? Few companies are willing to dish out their commercial secrets, but Umax, for one, attributes its competitive prices to its component-buying power (thanks to its large existing scanner manufacturing business) and lower costs due to being based in Taiwan.

It's possible that corners are being cut to reduce prices. It's possible, too, that their fresh "take" on Apple technology has enabled compatible makers to spot cost-cutting opportunities. It's also possible that the opening up of the Macintosh market has spurred some healthy competition, which itself has driven prices down.

What's clear from the machines we have reviewed, though, is that the manufacturing quality and reliability (during the time the machines were on test, and judging by the response from our readers) has not been an issue. Some clone models also boast innovative design or well-chosen extras like Zip drives (an option on PowerTowers) – they're not just built to a budget.

What does vary by a surprising amount, though, is performance for a given specification. We were disappointed by the PowerCenter compatibles we reviewed in MACFORMAT 42, all three of which (120MHz, 132MHz and 150MHz 604-based machines) turned in a poorer benchmark performance than the specs promised.



If you buy a compatible, are you helping to seal the fate of Apple? Not at all – every clone you buy secures Apple a handsome licensing fee, and licensing is one of the company's major revenue sources.

The point is that the compatible makers are hardly fly-by-night companies. The majority have a lot of experience in the market, are backed by substantial resources and have made a hefty investment in tooling up for and marketing their new computers.

The quality of after-sales support has yet to be fully tested, but do bear in mind when weighing up the pros and cons that Apple is hardly a shining example of promptness and selflessness in this respect. Unless you buy a Performa (in which case you get 12 months' free telephone support), you get a mere 90 days of free telephone help with your new Macintosh. And Apple's technical helplines are often very crowded...

Help is at hand

But what about after-sales support? We all know that Apple is a reputable and committed hardware manufacturer, but how can you be sure that Mac compatible makers aren't just cut-and-run merchants who'll take your money and leave you to fend for yourself?

Hardly. Umax, as we've already seen, was a major computer peripherals manufacturer long before it started making Mac compatibles. It's a major international company, too. The same goes for Motorola (now making the StarMax range), who, for those with short memories, manufactured all Mac processors up until the introduction of the PowerMac, as well as being one of the leading players in many branches of home electronics. Power Computing is a younger company, but it was set up in 1994 under the backing of Olivetti, which has a proven track-record in personal computing stretching back years.

Are Mac clones as well-made as genuine Apples? They certainly seem to be, and the cost-conscious construction of Apple's new 4400 shows that Apple too is happy to economise.

Umax, by contrast, provides free technical help throughout its machines' two-year warranty period. Many of the clone makers are providing professional computing solutions which include a much more substantial support package than Apple's miserable 90-day service.

The end of Apple?

More worrying than the quality of Mac compatibles and the support you can expect, though, is the effect they are going to have on Apple. If you buy a clone, are you contributing to Apple's ultimate demise? Are you somehow being disloyal to the brand? No, not at all. As Apple is always keen to point out, hardware manufacture is only one area of its business. Indeed, it's the area that has given the company most of its headaches in the past. Designing, building and selling computers is an expensive and risky business, and Apple hasn't always managed to get it spot-on.

Much of Apple's income comes from licensing its software technology. For example, TrueType font format (originally invented to compete with scalable PostScript fonts on the Mac) is now the standard font-handling technology for PCs. And Apple's QuickTime "multimedia layer" isn't just confined to the Mac; it's making serious inroads into the PC market too, and looks poised to become the video and movie standard on the Internet (see our guide to QuickTime on the Net on page 62).

Judging by the tone of recent Apple briefings, the development and licensing of its software is one of Apple's key strategies in the medium term. In that context, the licensing of the Mac OS itself makes a great deal of sense. This is particularly true when you consider the Mac's perennial problem: most agree that it's better than the PC (well, as Mac owners we would, wouldn't we?), but the PC dominates the desktop computer market – it's hit critical mass in a market-place where compatibility is just as important as performance. More important, in fact.

What's more, given Apple's (comparatively) limited resources and occasional strategic blunders, there's not much chance of the company itself turning this situation round. As long as only Apple made Macs it was likely to remain a "minority" machine, but with half a dozen major manufacturers on board, things might change. Apple UK's Jon Molyneux (interviewed on page 40) points out that the clone makers (especially Motorola) have in fact already captured a substantial slice of market share.

It's unlikely that the Mac OS will seriously challenge the dominance of PCs in the near future, but with the extra clout of the compatible makers it stands a good chance of making bigger inroads into the market. And because Apple earns revenue from each clone sold, the company is likely to be content with that.

Too good to be true?

This isn't to say MACFORMAT unreservedly endorses any and every compatible that reaches the market.

Will you get the same technical support with a clone as you do with an Apple Mac? No, you'll usually get much more!

Far from it. We review and rate individual models – both Apples and clones – as and when they appear. Not every Apple Mac has been a bargain, and not every compatible is going to be the best thing since sliced bread. What we would say, though, is that in principle buying a Mac clone is as smart and as safe as buying a "genuine" Apple.

Bear in mind that this is a rapidly-changing market, and just as it's impossible to generalise and say that compatibles are "better" or "worse" than Apple's machines, you can't say that one manufacturer is better or worse than another. About the only generalisation we can make is that you should always wait for the MACFORMAT review before making a buying decision. (See page 50 for our comprehensive guide to all current models.)

At least one thing's for sure: the arrival of Mac compatibles has dramatically increased the choice available to Mac buyers, and that increased commercial rivalry is making the new Mac market a very exciting place indeed! **MF**

Mac Facts explained

68LC040: a variation of the 68040 processor. It lacks the FPU component which its relative enjoys.
FPU: the Floating Point Unit speeds up complex maths calculations – useful for 3D, for example.
MHz: a processor's megahertz rating gives an indication of its speed, but the type of processor is equally important when you're comparing models.
NuBus: the Mac's traditional expansion slot. Outdated now, but there are still plenty of cards available.
PCI: Peripheral Component Interconnect is the expansion standard that has replaced NuBus – faster, cheaper (on the whole) and not likely to become redundant in the near future.
PC Card: formerly known as PCMCIA, it's the industry-standard expansion slot for portables. Lots of options.
PDS: the Processor Direct Slot is often used to upgrade your Mac's processor, but you can get other types of card, too.
PPC: PowerPC is the standard processor for all Macs nowadays. Broadly speaking, the 604e is the fastest, with the 604, 601, 603e and 603 trailing it – but compare those MHz ratings, too.

Dynamic Duo

The Apple PowerBook Duo was the first system of its kind to offer all the features of a desktop computer with the convenience of portability. Now that Apple has discontinued the last of the Duo line, Mac musician Bob Dormon offers his view.

PowerBooks may be impressive and highly desirable, but sooner or later their compactness hinders rather than helps. Portable computing may offer power, but it comes at a price: the size of the keyboard, no mouse, a smaller screen and limited expansion facilities.

About three years ago, when I was drooling over the prospect of a PowerBook 180c, I found the answer to all these issues in a PowerBook Duo system. What makes the PowerBook Duo so special is that you can fold it up, slot it into the Duo Dock and, hey presto, you have a desktop computer with two NuBus slots and bags of interfacing. The back of a Duo Dock sports audio in/out connectors, ADB for your keyboard, connection for a monitor, two serial ports, plus a separate fax/modem port and SCSI.

I bought a Duo 270c 12/240 EM (68030, 33MHz), plus a Duo Dock, keyboard and monitor. Duos may be expensive but they are flexible. By dispensing with a floppy drive (there's one in the Dock) this PowerBook weighs under 5lbs, compared with the 180c at over 7lbs. The connectors are minimal too: a built-in Express Modem port and a serial port. The dock interfacing is via a covered 152-pin PDS connector.

Running MIDI with the Duo is easy, but how about hard disk recording? Digidesign doesn't recommend you use its Audiomedia II cards with a Duo Dock, but I've found they work fine. I've even used the Duo's own internal drive

➤

Mac Facts

If you want to know if you can use a program we've reviewed or need to know what upgrades you can fit, our complete table of every Mac model ever should help. Current models are coloured blue-green.

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU	Price
Apple Compact Macs						
Mac 128K	68000	8MHz	128K/not exp	None	No	N/A
Mac 512K	68000	8MHz	512K/not exp	None	No	N/A
Mac Plus	68000	8MHz	1Mb/4Mb	None	No	N/A
Mac SE	68000	8MHz	1Mb/4Mb	1 PDS	No	N/A
Mac Classic	68000	8MHz	1Mb/4Mb	None	No	N/A
Mac SE/30	68030	16MHz	1Mb/128Mb	1 PDS	Yes	N/A
Classic II (= Performa 200)	68030	16MHz	2Mb/10Mb	None	Optional	N/A
Color Classic	68030	16MHz	2Mb/10Mb	1 LC-PDS	Optional	N/A
Apple Mac II Series						
Mac II	68020	16MHz	1Mb/68Mb	6 NuBus	Yes	N/A
Mac IIx	68030	16MHz	1Mb/128Mb	6 NuBus	Yes	N/A
Mac IIcx	68030	16MHz	1Mb/128Mb	3 NuBus	Yes	N/A
Mac IIvi	68030	16MHz	4Mb/68Mb	3 NuBus	Optional	N/A
Mac IIsi	68030	20MHz	1Mb/65Mb	1 NuBus/PDS	Optional	N/A
Mac IIci	68030	25MHz	1Mb/128Mb	3 NuBus	Yes	N/A
Mac IIvx (= Performa 600)	68030	32MHz	4Mb/68Mb	3 NuBus	Yes (not 600)	N/A
Mac IIfx	68030	40MHz	1Mb/128Mb	6 NuBus, 1 PDS	Yes	N/A
Apple LCs						
Mac LC	68020	16MHz	2Mb/10Mb	1 LC-PDS	Optional	N/A
Mac LC II (= Performa 400)	68030	16MHz	4Mb/10Mb	1 LC-PDS	Third-party	N/A
Mac LC III (= Performa 450)	68030	25MHz	4Mb/36Mb	1 LC-PDS	Optional	N/A
Apple Centris series						
Centris 610	68LC040	20MHz	4Mb/68Mb	1 NuBus/PDS	Upgrade	N/A
Centris 650	68040	25MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
Apple Performas (non-PowerPC)						
Performa 475 (= LC475)	68LC040	25MHz	4Mb/36Mb	1 LC-PDS	Upgrade	N/A
Performa 630 (= LC630)	68LC040	33MHz	4Mb/36Mb	1 LC-PDS	Upgrade	N/A
Apple Quadra series						
Quadra 610	68040	25MHz	4Mb/68Mb	1 NuBus/PDS	Yes	N/A
Quadra 660AV	68040	25MHz	8Mb/68Mb	1 NuBus/PDS	Yes	N/A
Quadra 700	68040	25MHz	4Mb/64Mb	2 NuBus, 1 PDS	Yes	N/A
Quadra 900	68040	25MHz	4Mb/256Mb	5 NuBus, 1 PDS	Yes	N/A
Quadra 650	68040	33MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra 800	68040	33MHz	8Mb/146Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra 950	68040	33MHz	8Mb/256Mb	5 NuBus, 1 PDS	Yes	N/A
Quadra 840AV	68040	40MHz	8Mb/128Mb	3 NuBus	Yes	N/A
Apple PowerPC Performas						
Performa 5200	PPC 603	75MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 6200	PPC 603e	75MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 5260	PPC 603e	100MHz	12Mb/64Mb	1 PDS	Yes	£965
Performa 5300	PPC 603e	100MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 6320	PPC 603e	100MHz	12Mb/64Mb	1 PDS	Yes	£1,250
Family Mac 5400/160	PPC 603e	160MHz	16Mb/136Mb	1 PCI	Yes	£1,498
Family Mac 5400/180	PPC 603e	180MHz	16Mb/136Mb	1 PCI	Yes	£1,761
Home Office 6400/180	PPC 603e	180MHz	16Mb/136Mb	2 PCI	Yes	£1,710
Home Office 6400/200	PPC 603e	200MHz	16Mb/136Mb	2 PCI	Yes	£1,879
Creative Studio 6400/200	PPC 603e	200MHz	24Mb/136Mb	2 PCI	Yes	£2,584
Apple Power Macintoshes						
PowerMac 6100/60	PPC 601	60MHz	8Mb/72Mb	1 NuBus/PDS	Yes	N/A
PowerMac 6100/66	PPC 601	66MHz	8Mb/72Mb	1 NuBus/PDS	Yes	N/A
PowerMac 7100/66	PPC 601	66MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 7200/75	PPC 601	75MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 7100/80	PPC 601	80MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 8100/80	PPC 601	80MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 7200/90	PPC 601	90MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 7500/100	PPC 601	100MHz	16Mb/512Mb	3 PCI, 1 PD	Yes	N/A
PowerMac 8100/100	PPC 601	100MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 8100/110	PPC 601	110MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 4400/160	PPC 603e	160MHz	16Mb/160Mb	2 PCI	Yes	£969
PowerMac 4400/200	PPC 603e	200MHz	16Mb/96Mb	2 PCI	Yes	£1,174
PowerMac 8200/120	PPC 601	120MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 8500/120	PPC 604	120MHz	16Mb/512Mb	3 PCI, 1 PD	Yes	N/A
PowerMac 9500/120	PPC 604	120MHz	16Mb/768Mb	6 PCI, 1 PD	Yes	N/A
PowerMac 9500/132	PPC 604	132MHz	16Mb/768Mb	6 PCI, 1 PD	Yes	N/A
PowerMac 7600/132	PPC 604e	132MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerMac 7300/166	PPC 604e	200MHz	16Mb/512Mb	3 PCI	Yes	£2,056
PowerMac 8500/180	PPC 604e	180MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerMac 7300/200	PPC 604e	200MHz	32Mb/512Mb	3 PCI	Yes	£2,467
PowerMac 8600/200	PPC 604e	200MHz	32Mb/512Mb	3 PCI	Yes	£2,643
PowerMac 9500/200	PPC 604e	200MHz	32Mb/768Mb	6 PCI	Yes	N/A
PowerMac 9600/200	PPC 604e	200MHz	32Mb/768Mb	6 PCI	Yes	£3,055
PowerMac 9500/180 MP	2 x PPC 604e	180MHz	32Mb/768Mb	6 PCI	Yes	N/A
PowerMac 9600/200 MP	2 x PPC 604e	200MHz	32Mb/768Mb	6 PCI	Yes	£3,878
Computer Warehouse Mac-compatibles						
New York	PPC 604e	200MHz	16Mb/160Mb	3 PCI	Yes	£1,761
Manhattan	PPC 604e	200MHz	64Mb/160Mb	5 PCI	Yes	£1,996

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU	Price
Hollywood	PPC 604e	200MHz	64Mb/160Mb	5 PCI	Yes	£2,349
DayStar Mac-compatibles						
Genesis MP600	4 x PPC 604e	150MHz	0Mb/1.5Gb	6 PCI	Yes	N/A
Genesis MP720+	4 x PPC 604e	180MHz	0Mb/1.5Gb	6 PCI	Yes	£8,224
Genesis MP800+	4 x PPC 604e	200MHz	0Mb/1.5Gb	6 PCI	Yes	£9,399
Motorola Mac-compatibles (All available in desktop ("d") or mini-tower ("t") configuration)						
StarMax 3160	PPC 603e	160MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	N/A
StarMax 3180	PPC 603e	180MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	*d*£1.021, *t*£1,174
StarMax 3200	PPC 603e	200MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	*d*£1,291, *t*£1,468
StarMax 3240	PPC 603e	240MHz	32Mb/160Mb	5 PCI	Yes	£1,879
StarMax 4160	PPC 604e	160MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	*d*£1,644, *t*£1,938
StarMax 4200	PPC 604e	200MHz	d16Mb, t32Mb/160Mb	*d* 3 PCI, *t* 5 PCI	Yes	*d*£2,231, *t*£2,349
Power Computing Mac-compatibles (Some models available in desktop ("d") or mini-tower ("t") configuration)						
Power 100	PPC 601	100MHz	16Mb/256Mb	3 NuBus	Yes	£939
PowerBase 180	PPC 603e	180MHz	16Mb/160Mb	3 PCI	Yes	£1,174
PowerBase 200	PPC 603e	200MHz	16Mb/160Mb	3 PCI	Yes	*d*£1,291, *t*£1,291
PowerBase 240	PPC 603e	240MHz	16Mb/160Mb	3 PCI	Yes	*d*£1,526, *t*£1,526
PowerCenter 120	PPC 604	120MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerCenter 132	PPC 604	132MHz	16Mb/256Mb	3 PCI	Yes	£1,350
PowerCenter 150	PPC 604	150MHz	16Mb/256Mb	3 PCI	Yes	*d*£1,526, *t*£1,761
PowerWave 150	PPC 604	150MHz	16Mb/512Mb	6 PCI	Yes	N/A
PowerCenter 166	PPC 604	166MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerCenter 180	PPC 604	180MHz	16Mb/512Mb	3 PCI	Yes	£1,879
PowerTower 200	PPC 604	200MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerTower Pro 200 Lite	PPC 604e	200MHz	16Mb/1Gb	6 PCI	Yes	£2,462
PowerTower Pro 200	PPC 604e	200MHz	32Mb/1Gb	6 PCI	Yes	£2,579
PowerTower Pro 225 Lite	PPC 604e	225MHz	16Mb/1Gb	6 PCI	Yes	£2,579
PowerTower Pro 225	PPC 604e	225MHz	32Mb/1Gb	6 PCI	Yes	£2,814
PowerTower Pro 225 MP	2 x PPC 604e	225MHz	32Mb/1Gb	6 PCI	Yes	£4,106
Umax Mac-compatibles						
Apus 2000/160	PPC 603e	160MHz	16Mb/144Mb	2 PCI	Yes	£875
Apus Desktop Pro 2160	PPC 603e	160MHz	32Mb/144Mb	2 PCI	Yes	£1,374
Apus 3000/200	PPC 603e	200MHz	16Mb/144Mb	3 PCI	Yes	£1,204
Apus Movie Maker	PPC 603e	200MHz	32Mb/144Mb	3 PCI	Yes	£2,744
Apus Multimedia Studio	PPC 603e	200MHz	32Mb/144Mb	3 PCI	Yes	£3,289
Apus Pro 3200	PPC 603e	200MHz	32Mb/144Mb	3 PCI	Yes	£1,712
Apus 3000/240	PPC 603e	240MHz	16Mb/144Mb	3 PCI	Yes	£1,669
Apus Pro 3240	PPC 603e	240MHz	32Mb/144Mb	3 PCI	Yes	£2,173
Pulsar 150	PPC 604	150MHz	16Mb/1Gb	6 PCI	Yes	N/A
Pulsar 166	PPC 604e	166MHz	16Mb/1Gb	6 PCI	Yes	N/A
Pulsar 200	PPC 604e	200MHz	32Mb/1Gb	6 PCI	Yes	£2,556
Pulsar 225	PPC 604e	225MHz	32Mb/1Gb	6 PCI	Yes	£3,054
Pulsar 200 DP	2 x PPC 604e	200MHz	32Mb/1Gb	6 PCI	Yes	£3,406
Apple Portables						
Macintosh Portable	68000	16MHz	2Mb/9Mb	Modem slot	No	N/A
PowerBook 100	68000	16MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 140	68030	16MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 170	68030	25MHz	4Mb/8Mb	Modem slot	Yes	N/A
PowerBook 145	68030	25MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 145b	68030	25MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 160	68030	25MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 150	68030	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook 165c	68030	33MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 180	68030	33MHz	4Mb/14Mb	Modem slot	Yes	N/A
PowerBook 180c	68030	33MHz	4Mb/14Mb	Modem slot	Yes	N/A
PowerBook 165	68030	33MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 520	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade	N/A
PowerBook 520c	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade	N/A
PowerBook 540	68LC040	33MHz	4Mb/36Mb	Modem slot	No	N/A
PowerBook 540c	68LC040	33MHz	4Mb/36Mb	Modem slot	No	N/A
PowerBook 190	68LC040	33MHz	8Mb/40Mb	2 PC card	No	N/A
PowerBook 190cs	68LC040	33MHz	8Mb/40Mb	2 PC card	No	N/A
PowerBook 5300	PPC 603e	100MHz	8Mb/56Mb	2 PC card	Yes	N/A
PowerBook 5300c	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 5300ce	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 5300cs	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 1400cs/117	PPC 603e	117MHz	12Mb/64Mb	2 PC card	Yes	£2,010
PowerBook 1400c/133	PPC 603e	133MHz	16Mb/64Mb	2 PC card	Yes	£3,180
PowerBook 3400c/180	PPC 603e	180MHz	16Mb/144Mb	2 PC card	Yes	£3,541
PowerBook 3400c/200	PPC 603e	200MHz	32Mb/144Mb	2 PC card	Yes	£4,154
PowerBook 3400c/240	PPC 603e	240MHz	16Mb/144Mb	2 PC card	Yes	£5,075
Apple Duos						
PowerBook Duo 210	68030	25MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 230	68030	33MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 250	68030	33MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 270c	68030	33MHz	4Mb/32Mb	Modem slot	Yes	N/A
PowerBook Duo 280	68LC040	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook Duo 280c	68LC040	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook Duo 2300c	PPC 603e	100MHz	8Mb/56Mb	Modem slot	Yes	N/A
Apple Duo Docking Stations						
PowerBook Duo MiniDock	-	-	-	None	No	N/A
PowerBook Duo Dock	-	-	-	2 NuBus	Optional	N/A
PowerBook Duo Dock II	-	-	-	2 NuBus	Yes	N/A
PowerBook Duo Dock Plus	-	-	-	2 NuBus	No	N/A

Dynamic Duo continued

to get four tracks of CD quality audio playing alongside MIDI sequences. When on the move, though, you're limited to 8-bit sound recording. I decided to take portable computing to its extremes, so set up a currency exchange spreadsheet which I downloaded via AppleTalk to my Newton. The Newton is capable of performing such calculations, but an on-screen "ready reckoner" is quicker.

At home my Duo stays in the Dock hooked up to a CD-ROM and an EZ drive. The built-in modem means I have two free serial ports – one for my Portable StyleWriter and the other for my Opcode Studio 4 MIDI port. When travelling, I use the MIDIStrip and have to dispense with all but the printer and the internal Express Modem.

You can overcome the lack of floppy drive by using AppleTalk to transfer files between Macs. When visiting *The Mix* (part of Future's extended family), I can hook up to its LocalTalk Network, access the laser printer and copy my work over to the editor's Mac without a hitch.

So what's the downside? For music it has to be the internal sound chip – even the Duo 2300 and PowerPC upgrades (despite being 16-bit) are mono. Programs like *Cubase VST* are lost on these machines. Another musical consideration is the dongle or hardware key. Emagic's *Notator Logic* uses one that hooks up to the ADB port. Sorry, folks, no ADB. The answer: Apple's Mini Dock or the cheaper Micro Dock (SCSI, ADB only) from Newer Technologies.

So what's become of the Duo? PC manufacturers have copied it, so it's obviously seen as a good idea. The old technology may now be limiting, but I'm sure Apple would be forgiven if it brought out a "next generation" Duo that was incompatible with the existing Docks. A Dock with PCI slots, CD-ROM, plus an AV facility would be fantastic. People are used to their computer equipment being superseded whether they like it or not. What's hardest to swallow is witnessing a good idea disappearing altogether.

Contacts

For models still officially on sale, we've listed the current estimated street prices in the UK. All prices include VAT.

Prices are changing fast at the moment, and there are plenty of bargains to be had as older models are phased out. Contact the supplier below for the range you're interested in.

- **Apple Computer**
  Apple: 0800 127753
- **Computer Warehouse**
  MCM: 0171 724 4104
- **DayStar**
  Computers Unlimited: 0181 358 5857
- **Motorola**
  Principal Distribution: 01756 704444
- **Power Computing**
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  IMC Computer: 01344 871344

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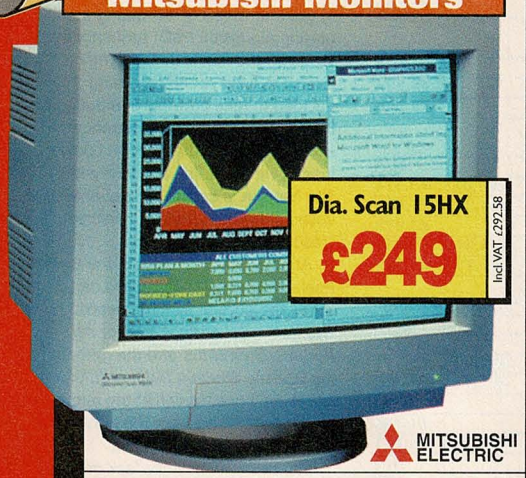

Diamond Scan 15HX 15in/1024x768/FST	VMIT15HX	£249
Diamond Pro 67TXV 17in/1280x1024/Diamondtron	VMIT67TXM	£425
Diamond Pro 87TXM 17in/1280x1024/Diamondtron	VMIT87TXM	£475
Diamond Pro 91TXM 21in/1600x1280/Diamondtron	VMIT91TXM	£989

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Provision 4/60 4Mb VRAM/1152x87@100Hz	VPNGA40-3	£299
ProLegend GA 3Mb VRAM/1152x870@75Hz	VPNGA20-0	£329
ProNitron F17 17in/1280x102@70Hz	VPN1787-1	£359
ProNitron 17/400 17in/1280x1024@75Hz	VPN1785-1	£485

Viewsonic Monitors

Viewsonic 14E641 14in/800x600	VVS14E641	£159
Viewsonic 15GS 15in/1024x768	VVS15GS	£249
Viewsonic G800 20in/1600x1280	VVSG800	£799

Apple Monitors

Multiscan 1710 Trin 17in/1280x1024@75Hz	VM4588B/A	£519
Multiscan 1710AV Trin 17in/1600x1280@75Hz	VM4589B/A	£579

Bargain BASEMENT

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Freehand 7.0 for PC	SWFHPCD	£199
32Mb 72 Pin Simms for PowerMac	S8326SD	£89
Apple Multiscan 15" Display	VM3379Z/AD	£199
Apus 2000/160Mhz 16/1.2/CD Computer	CAPUS160D	£699
Targus NotePac	TNP	£24.95
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Some items may be ex-demonstration units, or have damaged packaging and/or missing manuals. Full manufacturers warranties apply. Limited stocks. First come first served.

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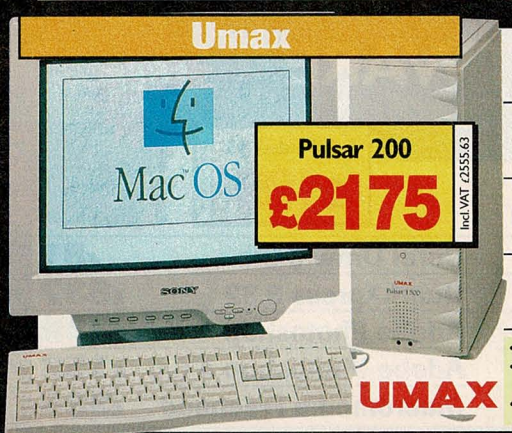

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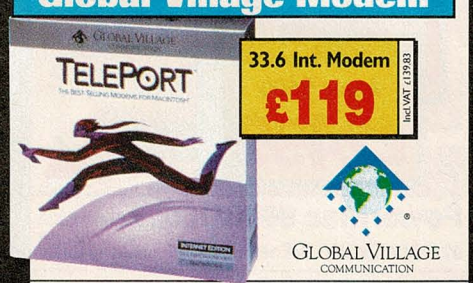

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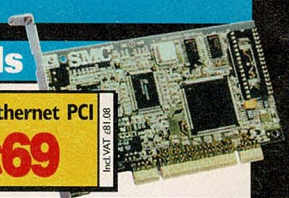

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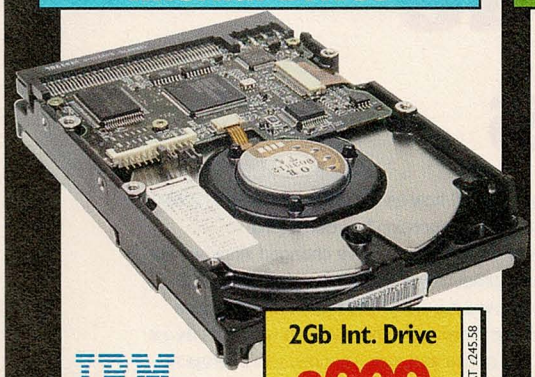

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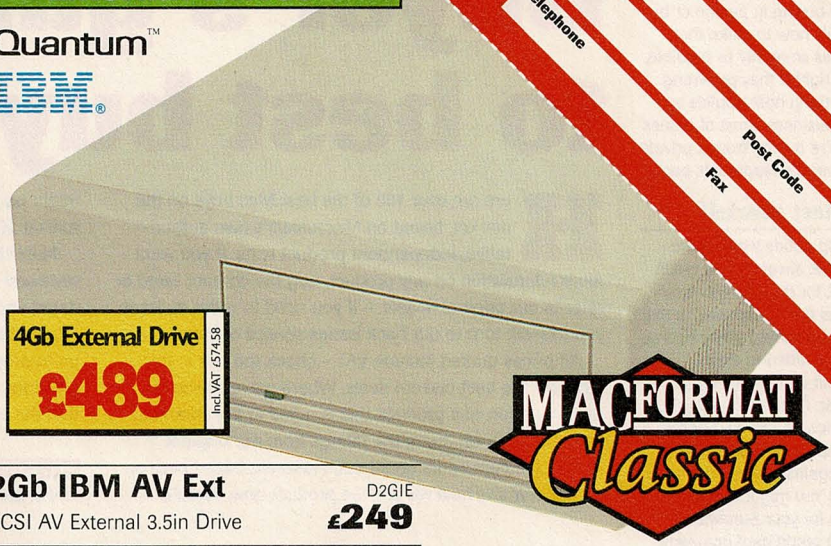

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* see details on previous page

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All prices are for business users and exclude VAT. Next Day delivery from £9 or 48 hour delivery from £5.50. Prices and descriptions are correct at time of going to press, but may change. E&OE. All orders are subject to our terms and conditions which are available on request. We may make our mailing list available to other companies, please let us know if you would like to be excluded. © Performance Direct 1997.

Buying advice

Whether you're buying in person or by mail order, here's how to make the transaction go as smoothly as possible, and put things right if they go wrong. Note that everything here applies to buying from a business; most of it does *not* apply if you're buying from a private seller in MACFORMAT's reader ads pages.

How to protect yourself

If you are buying goods worth more than £100 in total, always use a credit card if possible, for the whole or even just a part of the price. That way, in the unlikely event of anything going wrong, you'll be legally entitled to claim against the credit card company as well as the seller. (You won't get your money back twice, of course, but the credit card company is likely to be there to claim against, even if the seller has gone bust.) You might also get extra insurance for your purchase – check with your credit card company.

If you don't have a credit card, pay by cheque or postal order (ask at your post office). Never send cash through the mail, even by registered mail. Apart from any risk of theft, you can't stop payment if you need to, and even if you have proof of posting, it is impossible to prove how much you sent.

Keep records. If you're paying by credit card over the phone, keep a note of the exact time of the order and the name of the person who took it, and ask for an order number. If you're paying by cheque, make sure you fill in the details of the date, amount and payee's exact name on the stub – and keep it somewhere safe! Always keep all receipts, and make notes of all correspondence by mail or phone.

Other sensible precautions

- Shop around for the best price and check what is included. Packing and delivery? Any necessary cables? VAT? By law, an advert must say *explicitly* if VAT is *not* included; if it doesn't, VAT *is* included. But this can be in the small print, so do check.
- If you're buying by mail, ring first to confirm price and availability. Explain what you want the product for and satisfy yourself that you're getting what you need – you can't return something later just because you've changed your mind. Ask what the dealer's policy is should you have problems – few mail-order dealers offer "on-site" service. Find out when you can expect delivery.
- If you're buying in person, check that everything works before you leave the shop. If you've ordered by mail, check the goods carefully when they arrive. If the driver's in a hurry, mark the delivery note "Goods not inspected". If there's any part of the product you're not happy with, don't use it. If you do, you could be deemed to have accepted it.
- Whether you bought it by mail or in a shop, the law says a product must be:

1. "Of satisfactory quality" (that is, broadly speaking, it must work);
2. "As described" (in the advert or in

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Buyer's guide to best buys

Here are over 160 of the best Mac buys on the market, based on MACFORMAT's own authoritative, independent product tests. If you want more information on any product, ring the contact listed or refer to our original review – if you need to order an issue you missed, turn to our back issues service on page 144.

All prices quoted include VAT – check the ads in this issue for the best current deals. Where we reviewed an earlier version of a product, this is noted in the comment line. Although we quote the ratings from our original review, the comments about each item are based both on that review *and* how we see the product now. *Word 6* might be just as good now as when we reviewed it in MACFORMAT 20, but the competition has developed.

Note that some details may have changed since we first reviewed these products – hardware in particular is updated and improved regularly. The information in these listings has been thoroughly checked and is correct as we go to press, but prices and specifications can change at any time. Always make enquiries before you buy, to verify that the product you're considering will meet your needs.

MF CLASSIC We give the MACFORMAT Classic award only to products that set the standards for others to follow.

Storage media

What do you do when your hard disk is full to the brim? External storage devices can provide much-needed extra storage capacity or become a portable storehouse for vast quantities of data.

Name	Price	Rating	Reviewed	Contact	Telephone
Electronique d2 640Mb MO	£551	80%	MF48	Electronique d2	0171 833 0009
A respectable 3.5-inch magneto-optical drive, which is let down by its price and documentation.					
Electronique d2 2.6Gb MO	£2,114	83%	MF43	Electronique d2	0171 833 0009
A fast and neat magneto-optical drive, but it's expensive and comes with only basic software and poor documentation.					
Electronique d2 2Gb AV HD	£512	90%	MF43	Electronique d2	0171 833 0009
MF CLASSIC A stylish external hard disk with minimal documentation; basic driver software, but lightning-fast.					
Electronique d2 540 MCD	£288	83%	MF48	Electronique d2	0171 833 0009
One of the faster magnetic cartridge drives around, with full formatting and driver utilities.					
Gasteiner 1Gb HD	£293	90%	MF34	Gasteiner	0181 345 6000
MF CLASSIC A fast, cheap and compact hard drive, but with an extremely noisy fan.					
Iomega Zip Drive	£141	81%	MF48	Iomega	0800 973194
A well-established, cheap 3.5-inch 100Mb drive that feels a bit creaky and is looking rather slow in this day and age.					
MicroNet Jaz Drive	£469	94%	MF43	MicroNet	01926 470460
MF CLASSIC The successor to the Zip drive uses astonishing 3.5-inch 1Gb cartridges and is fast, portable and cheap.					
Olympus 230Mb PowerMO	£351	91%	MF43	Mac & More	01442 878900
MF CLASSIC A compact 3.5-inch magneto-optical drive that's neat, fast, cheap, and comes with a long-term warranty.					
ONE Tech 2.6 Optical Drive	£1,268	95%	MF34	MacTrix	0181 566 8988
MF CLASSIC Pretty fast, quiet, inexpensive and hard to fault. We reviewed the ONE Tech 1.3Gb MO.					
Performance Direct 2Gb HD	£375	92%	MF43	Performance Direct	01784 477477
MF CLASSIC An inexpensive and functional-looking hard disk which comes with excellent driver software.					
Quantum Fireball 1.2Gb HD	£269	88%	MF34	Performance Direct	01784 477477
A quiet, very fast hard drive with a good-length SCSI cable. We reviewed the Quantum Fireball 1Gb HD.					
Xyratex 5000 2.6Gb MO	£1,409	90%	MF43	Performance Direct	01784 477477
MF CLASSIC Reasonable performance and good value for money from this big slab of a magneto-optical drive.					

Monitors

Not all monitors are the same. How sharp is your picture? Are the colours crisp and true to life? What resolutions are available? Is there any distortion? We've tested both 15-inch and 17-inch models.

Name	Price	Rating	Reviewed	Contact	Telephone
AppleVision 1710	£927	92%	MF40	Apple	0800 127753
MF CLASSIC A 17-inch monitor with easy controls, overscan (no black borders) and superb picture quality.					
Hitachi 17MVX Pro 2	£704	85%	MF40	Hitachi	0800 605 605
Good performance even at high resolutions, although setting up the screen could get fiddly and tedious.					
Hitachi 17MVX V2	£551	83%	MF44	Hitachi	0181 849 2000
Good picture quality and comprehensive controls but disappointing documentation. Impressive for the price.					
Iiyama Pro 17-inch	£735	89%	MF40	Iiyama	01438 745482
The DiamondTron screen provides excellent quality even at the staggering maximum resolution of 1,600 x 1,200.					

Name	Price	Rating	Reviewed	Contact	Telephone
Mitsubishi 15HX	£376	82%	MF40	Mitsubishi	01707 276 100
This screen uses Mitsubishi's DiamondTron system to get close to Trinitron quality and provide an excellent display.					
Mitsubishi 17HX	£758	83%	MF40	Mitsubishi	01707 276100
Good quality except at the highest resolution, and comes with an anti-moiré function. The manual could be more helpful.					
Samsung 17GLsi	£822	84%	MF40	Samsung	0800 521 652
A 17-inch unit with a maximum resolution of 1,280 x 1,024 and a Trinitron tube. Excellent quality at all resolutions.					
Sony 15sfII	£465	91%	MF40	Sony	0181 760 0500
MF CLASSIC Unusually for a 15-inch monitor, the Sony provides superb picture quality at all resolutions.					
Sony 17sfII	£763	92%	MF40	Sony	0181 760 0500
MF CLASSIC Picture quality is excellent at all resolutions, setting up is easy and the manual is excellent.					
Taxan Ergo Vision 730TCO	£735	84%	MF40	Taxan	01344 484646
This 17-inch monitor offers better picture quality than its 15-inch smaller brother. We reviewed the Ergo Vision 730LR.					

Graphics cards

Speed up your Mac's display with an accelerator card. Different models can be set up to add resloution and colours, improve 3D rendering or offer all-round improvements.

Name	Price	Rating	Reviewed	Contact	Telephone
ATI Xclaim GA	£293	79%	MF45	ATI	01235 833666
The Xclaim GA has a good mix of useful features and it's a solid performer, but it would benefit from a price cut.					
Formac ProLegend GA (NuBus)	£622	80%	MF45	Formac	0181 533 4040
This card has a good range of features, but it's not terribly fast. Also, it doesn't support thousands of colours.					
Formac ProVision 4/60	£499	87%	MF45	Formac	0181 533 4040
The ProVision 4/60 has a broad range of features, good documentation and is very fast indeed.					
IMS Twin Turbo 128M2	£352	83%	MF45	Principal	01793 441100
Although slow in real-world tests, we liked this card because of its ease of use and upgradability.					
Matrox MGA Millennium	£234	88%	MF45	Principal	01793 441100
Pretty speedy and great value for money – this card offers not only 128-bit graphics, but also has QuickDraw 3D.					

Digital input

How do you get analogue data from the real world into digital data on your Mac? Here is MACFORMAT's pick of scanners, digital cameras and related software.

Name	Price	Rating	Reviewed	Contact	Telephone
Apple QuickTake 150 camera	£525	72%	MF41	Apple	0800 127753
Indifferent picture quality and flash accuracy with this digital camera. You do get a useful image editing program.					
Connectix Colour QuickCam	£199	85%	MF45	Connectix	0171 622 3355
As an unpretentious, low-cost and fun entry to digital still and video images on the desktop, it's difficult to fault.					
Epson GT-5000 scanner	£469	81%	MF41	Epson	01442 61144
This scanner's a little fuzzy but has reasonable colour reproduction. A little lacking in features, with poor documentation.					
Kodak DC-20 camera	£353	91%	MF41	Kodak	0800 281487
MF CLASSIC Pretty low-resolution digital camera but extremely easy to use and fun too.					
Microtek Scanmaker E3	£328	86%	MF41	CU	0181 358 5857
At 600dpi, images were a bit fuzzy and lost subtlety, but overall performance is very acceptable for a scanner of this price.					
Umax Vista S6E scanner	£499	85%	MF41	IMC Distribution	01344 872 800
Very fast scanner but with a little fuzziness and difficulty with greens. Otherwise quality was good, given the price.					
Visioneer PaperPort scanner	£293	86%	MF28	CU	0181 358 5857
Tiny A4 mono scanner that can sit between your keyboard and Macintosh – sheets are rolled in and out.					

Printers

Are you shopping for a mono printer or colour? Portable or desktop? PostScript or non-PostScript? Inkjet or laser? We've reviewed dozens of printers for every need, and here is our pick of the best.

Name	Price	Rating	Reviewed	Contact	Telephone
ALPS MD-2010	£529	90%	MF45	Rotec Distribution	01604 402012
MF CLASSIC Slow and clackety though it might seem, the MD-2010 produces quite superb colour and definition.					
Apple LaserWriter 12/640 PS	£1,387	80%	MF47	Apple	0800 127753
A perfectly adequate laser printer – slightly over priced, but ideal if you feel safest wih an Apple badge on your hardware.					
Apple StyleWriter 1500	£275	90%	MF38	Apple	0800 127753
MF CLASSIC For the price, excellent colour performance even on plain paper.					
Apple StyleWriter 2500	£359	84%	MF38	Apple	0800 127753
A big improvement on its predecessor the 2400, but not quite in the same league as colour rivals from HP and Epson.					

Buying advice continued

person – and this criterion applies also if you're buying from a private seller);
3. Fit for the purpose for which it was sold or which you specified.
If it fails to meet any or all of these criteria, you are entitled to return the product for a full refund, get compensation for all or part of the value, or get a replacement or free repair, depending on the seriousness of the defect. These are the "statutory rights" that adverts always say are "not affected" by any extra guarantees. A dealer can't deny these rights or add conditions (such as "provided goods are returned to us at your expense within seven days").

How to complain

If you're not happy about something, contact the supplier first and politely explain your concerns. Be patient; if there's some technical problem, it may genuinely take some time to find a solution. Most difficulties are sorted out at this stage without further fuss.

If yours isn't, put your complaint in writing, clearly stating your problem and what you'd like done. Give the firm a reasonable time to reply – say 14 days or so.

- If your complaint is not resolved, you may need to take some sort of legal action to enforce your rights. This need not cost you a lot of money. Seek advice from a solicitor (ask about the free advice scheme – you may not have to pay for the initial consultation). Or contact one of the following (check in your local phone directory):
- The Citizen's Advice Bureau,
- Trading Standards Office (listed under your local council),
- Office of Fair Trading, or
- County Court (ask about the Small Claims procedure).

Where to buy

- Mail-order companies are ideal if you know what you want and how to set it up, and therefore just want the best price.
- Retailers are a good bet if you need advice and technical assistance, and you want to examine products before you buy them.

There are a several types of retail outlet selling Macintosh products:

- Authorised Apple resellers may not always offer the best price, but you can expect a wide choice of hardware and software, and considerable expertise.
- Major retail chains can be another, sometimes more accessible, source. The Dixons group sells a limited number of models in the Mac range, while Comet and PC World stock hardware and software. Check with your local store before visiting, though – smaller stores may not stock a useful range.
- Entertainment chains like HMV now carry Mac software in some branches.
- Finally, independent retailers may stock Mac products. Check your local Yellow Pages for more information.

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Product news

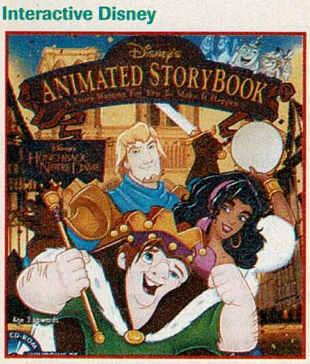
Joy riding

Carmageddon is a new 3D driving game that relishes road rage. The aim of the game is carnage - obliterating your opponent to score big points. The races take place over a variety of terrains and your opponents drive personalised vehicles which are reminiscent of the *Wacky Races*. There is also an option to play **networked multiplayer games.** *Carmageddon* costs **£34.99** from **SCi** – call **0171 585 3308** for details.

Apple StyleWriter 2500 Printer

The new **Colour StyleWriter 2500 Printer** now has photo-realistic capabilities, and a **Colour PhotoGrade Print Kit** worth £49 is available **free** with every StyleWriter 2500 purchase. Updated printer driver software is supplied with the printer on CD or floppy, and extras bundled for your printer include a new cartridge and paper. The **PhotoGrade Print Kit** works with the StyleWriter 2500, to produce faster images of very high quality. If you already own a 2500 Printer, then the upgrade costs **£49.35 –** but expect to pay **£276** for the colour StyleWriter 2500 with the **PhotoGrade Printer Kit.** Call the **Apple Customer Response Centre** on **0800 127753,** or visit the Apple home page: **http://www.apple.com/**

Interactive Disney



Disney Interactive is going small-screen with its latest CD-ROM release, ***The Hunchback of Notre Dame Animated Storybook.*** Medieval Paris is the backdrop for this famous tale and it provides 26 lively scenes as Quasimodo attempts to rescue Esmerelda from the evil Frollo. The story unfolds in every scene, and there are several games and activities which test your imagination and puzzle-solving skills within each. All the magic of Disney has been captured in *The Hunchback of Notre Dame Animated*

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Name	Price	Rating	Reviewed	Contact	Telephone
Epson EPL-5500	£469	89%	MF39	Epson	01442 61144
Compact and light 600dpi PostScript printer with a useful 5Mb of RAM. You'll need to buy a lead for your Mac, though.					
Epson Stylus Pro	£513	90%	MF38	Epson	01442 61144
MF CLASSIC Built like a breeze block, but offers stunning smoothness. Almost as good as a dye-sub printer.					
FotoFUN! Printer	£493	87%	MF31	Bannerbridge	01268 419101
Affordable, good quality dye-sub colour output. Takes up little space but only prints out 6-inch x 4-inch snapshots.					
HP LaserJet 5MP	£1,198	95%	MF29	Hewlett Packard	0990 474747
MF CLASSIC 600dpi PostScript laser printer with excellent greyscale and remarkable output quality at the price.					
HP DeskJet 340	£235	85%	MF27	Hewlett Packard	0990 474747
Portable 300dpi inkjet with colour capability and excellent output quality. We reviewed the HP DeskWriter 320.					
HP 870cxi	£494	92%	MF38	Hewlett Packard	0990 474747
MF CLASSIC First-rate colour balance and very good performance on plain paper. We reviewed the HP 850C.					

Modems

If you want to connect to the Internet, to bulletin boards, on-line services or even friends and acquaintances via your Mac, you need a modem. The faster the modem, the cheaper it will be to run.

Name	Price	Rating	Reviewed	Contact	Telephone
Global Village Platinum	£234	92%	MF39	InfoBank	0181 991 0578
MF CLASSIC The Teleport Platinum is a slick, fast and stylish 28.8K modem with a good manual, fax and OCR software.					
Motorola 3400	£150	90%	MF39	Gasteiner	0181 345 6000
MF CLASSIC Uncomplicated and easy to set up 28.8K modem, but with rather basic fax software.					
SupraExpress 33.6	£175	89%	MF39	CU	0181 357 5758
Plain-looking 33.6K modem powered by your ADB keyboard port. We reviewed the SupraExpress.					
US Robotics Mac & Fax	£199	89%	MF39	US Robotics	0800 225252
The Mac & Fax Sportster is a fast and reliable 28.8K modem, but there's no straight-through port to plug a telephone into.					

Input devices

There are plenty of alternatives to your regular keyboard and mouse, including some for specialised use. Take a look at graphic tablets as well – these enable you to sketch into art packages.

Name	Price	Rating	Reviewed	Contact	Telephone
AlphaSmart Pro Keyboard	£234	86%	MF47	Chromasonic	0181 203 8989
Doubles brilliantly as a portable word processor, but as a keyboard it's let down by spongy key action.					
Apple Adjustable Keyboard	£166	81%	MF47	Apple	0800 127753
A space-age split keyboard which is remarkably comfortable, but bulky and overpriced.					
Apple Design II Mouse	£29	83%	MF47	Apple	0800 127753
Shapely mouse with positive click but a little bulky for smaller hands. It's standard with most PowerMacs and Performas.					
Calcomp DrawingSlate II A6	£116	86%	MF47	Calcomp	01734 320032
Superb value for money - just as well made as Wacom's tablets, with a brilliant range of highly usable features.					
Kensington Thinking Mouse	£54	86%	MF47	Mac Accessory	0191 296 1500
Top of the range. Has four buttons (five when front two are pressed together), all fully programmable.					
MacAlly Single-Button Mouse	£18	87%	MF47	Mac Accessory	0191 296 1500
Great value – the sensitive switch requires a super-light touch so lessens finger fatigue. Easy-maintenance design.					
Wacom ArtPad II	£158	90%	MF47	CU	0181 358 5857
MF CLASSIC A little expensive, but the quality is superb and the UltraPen Eraser is simply brilliant.					
Wacom UltraPad A4	£540	85%	MF47	CU	0181 358 5857
Very well made indeed, with the excellent UltraPen Eraser or puck. At the street price of nearer £350, a great buy.					

Office software

Many Macs are used in the office or study with worthwhile applications like word processors, databases and spreadsheets. There are many related productivity applications, too, like personal organisers.

Name	Price	Rating	Reviewed	Contact	Telephone
ClarisImpact 2	£152	86%	MF34	Claris	0181 756 0101
Combines spreadsheet functions with charting, outlining and DTP for the ultimate low-end business presentation suite.					
ClarisWorks 4.0	£152	92%	MF31	Claris	0181 756 0101
MF CLASSIC The Mac's standard all-in-one office suite. Inexpensive yet very powerful in the right hands.					
Excel 5	£220	87%	MF18	Microsoft	0345 002000
The only professional spreadsheet package on the Mac boasts 3D documents and more power than a Saturn 5.					
Expresso 1.0	£20	89%	MF31	Softline	0181 401 1234
Personal organiser that makes up for in charm and value what it lacks in high-powered relational data-handling.					

SIX OF THE BEST *from* TASHA

Performa 5320/120

• 16MB RAM • 1.2GB Fast hard drive • 4x- speed CD-ROM
• 120Mhz 603 RISC Processor • TV Tuner and remote control
• Internet ready 28.8 Fax / Data Modem
• Video in and MPEG video card included • Built-in Stereo Speakers

£1199

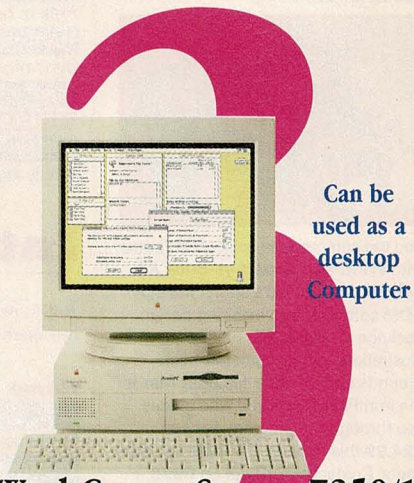
Claim state of the art QuickTake 150 Digital Camera worth (£399) *Free!* when you buy our blockbuster package (Apple Creative Studio Plus Colour Stylewriter 2500 Printer) before 29th of March 97.

Apple Creative Studio Performa 6400/200

• 24MB RAM • 2.4GB Fast hard drive • 8 x- speed CD-ROM
• 200 Mhz PowerPC 603e Risc • 256 level 2 cache
• Internet ready 28.8 Fax / Data Modem
• 15 in Multiple Scan Display • Keyboard • Mouse
• Printer not included in the price.

£2099

£800



Can be used as a desktop Computer

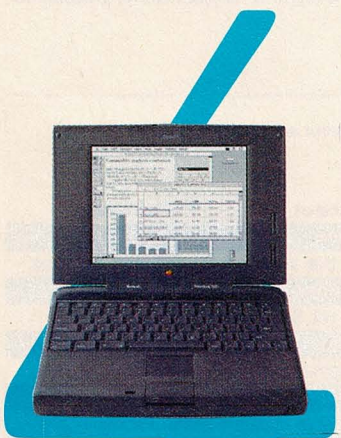
WorkGroup Server 7250/120

Apple WorkGroup Server under £800.

This is first time an Apple WorkGroup Server has ever been available for less than £900. Y et, it gives the performance and reliability features you would expect

•16MB RAM • 1.2GB internal hard drive • CD- ROM drive
• 601 RISC with integrated math Co-Procesessor and 256K level 2 cache
• 3PCI slots • Built in Ethernet for faster data transfer over network
• 17 in Multiple Scan Display and Keyboard are not included in price

£799



PowerBook 5300/100

PowerBook 5300 under £900.

• 8MB RAM • 500MB Fast hard drive • Floppy Disk Drive
• 603e RISC with integrated math Co-Procesessor and 16K data cache
• 9.5" backlit passive-matrix Display

New Low Price

£899

PowerBook 5300cs/100

• 8MB RAM • 500MB Fast hard drive • Floppy Disk Drive
• 603e RISC with integrated math Co-Procesessor and 16K data cache
• 10.4" backlit dual scan colour Display

New Low Price

£1199

Superb Value!

PowerBook Duo 2300c/100

• 20 MB RAM • 1.1GB Fast hard drive
• 603e RISC with integrated math Co-Procesessor and 16K data cache
• 9.5" backlit active-matrix colour Display
• Express Modem

New Low Price

£1499

These products are intended for business user and excludes VAT.
Goods subject to availability.

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COMPUTERS

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London W14 8NZ
Tel: 0171 602 9444

or visit us on the internet at http://www.tasha.co.uk

AppleCentre

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Offer open to further and higher education students (proof of status may be requested), from participating Apple Authorised Further and Higher Education Resellers, from 1st October – 31st December 1996 or while stocks last.

Product news continued

Storybook, and it costs **£39.99.** Contact **Buena Vista Home Entertainment** on **0181 222 1413.**

Create-A-Book

You too can produce books from home with **PrintPaks'** ***Create-A-Book Kit.*** But this isn't just kid's stuff – the CD-ROM software is an inspiring design package including 300 unique illustrations, stamps, photos, backgrounds and paintbox features. Max is the PrintPaks hip hound who guides you through the program. For just **£24.99** this exciting CD-ROM could be yours. Contact **PrintPaks** on **0990 134927** for more details.

Willy Wabbit's 3D-Maths Adventure

Do maths problems bring you out in a cold sweat? Well **Willy Wabbit** is a new role-playing game on CD-ROM that aims to help you in your quest to solve such dilemmas. Through a series of tutorials, games and missions, Willy weckons it's weally easy when you know how. Created by **Systems Education Centre,** this **3D Maths Adventure** has input from education specialists, and is primarily aimed at **children aged 11 - 16** years. Find out more about this CD-ROM, available for **£29.99**, by contacting **US Dreams** on **01483 728397.**

Panasonic enters monitor market

Panasonic is bulldozing its way into the Liquid Crystal Display monitor market with the **PanaFlat LC40.** It's a 14-inch, flat screen monitor with enviably high-resolution – **1,024 x 768.** In addition to this, its wafer-thin profile makes it a desirable space-saver for any professional. The PanaFlat LC40 also has low power consumption and anti-glare screen coating among its many extras but you have to pay a hefty price – £2,932 (for comparison, you can get a standard monitor with all the trimmings for just under £500). Take a look at the Panasonic Web site **http://www.panasonic.co.uk/** or call **0500 404041** for more details.

Wacom price-cuts

Wacom has just announced reduced prices for its **graphics tablets,**

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Name	Price	Rating	Reviewed	Contact	Telephone
FileMaker Pro 3.0	£234	96%	MF37	Claris	0181 756 0101
MF CLASSIC An excellent database that's been tweaked and tuned, and is now fully relational.					
Let's KISS	£153	91%	MF41	Softline	0181 401 1234
MF CLASSIC So far ahead of traditional spreadsheet designs you wonder why no-one thought of it sooner.					
Organiser 2	£81	86%	MF46	Claris	0345 413060
Able to handle links between information both internally and to the Net – no networking, though.					
Up-to-Date & Contact 3.5	£116	89%	MF31	Now! Software	01525 237001
Dynamically-linked duo of contacts manager and diary. Occasionally a little too complex for its own good.					
Word 6.0.1	£220	92%	MF20	Microsoft	0345 002000
MF CLASSIC The world's favourite word processor has a monumental feature list but a bewildering array of controls.					
WordPerfect 3.51	£194	88%	MF48	Corel	0800 973189
A fully featured word processor that's every bit as powerful as any of its rivals, and friendly with it.					

Internet and comms

These days communications and the Internet are virtually synonymous, and the latest generation of Web browsers handle e-mail, ftp, Usenet and anything else you might want to do on the Net.

Name	Price	Rating	Reviewed	Contact	Telephone
Em@iler	£58	82%	MF42	Claris	0181 756 0101
Neat and attractive e-mail application that handles mailboxes, enclosures and address books painlessly.					
Eudora Pro 3	£75	83%	MF42	Electric Mail	01223 501333
Very powerful e-mail application with a new, friendlier interface that doesn't quite hide some murky technical depths.					
Internet Explorer 3	Free	78%	MF39	Microsoft	0345 002000
Microsoft's browser isn't as good as *Netscape,* but it is free. We reviewed *Internet Explorer 2.*					
Netscape Navigator 3	$49	94%	MF39	Netscape at http://home.netscape.com/	
MF CLASSIC The world's favourite Web browser does everything rather too well for comfort. We reviewed *Netscape 2.0.*					
Snap Mail 2 (5-user pack)	£206	90%	MF42	Softline	0181 401 1234
MF CLASSIC Simple and fun networked e-mail software that requires no administrators or complex set-up procedures.					

Utilities

Whether you want to add features missing from the regular Mac Finder or protect your set-up from System crashes, there's a utility to do the job.

Name	Price	Rating	Reviewed	Contact	Telephone
Conflict Catcher 3	£81	81%	MF29	Softline	0181 401 1234
Automated conflict-catching walk-throughs combine with Extension management that include fonts and start-up items.					
Norton Utilities 3.2	£116	88%	MF42	Symantec	01734 814 230
Superficial enhancements to a dated application that's not even PowerMac-native yet. Still market leader... for now.					
Personal Backup	£46	92%	MF29	Softline	0181 401 1234
MF CLASSIC Automated back-up scripts that can run near-invisibly in the background at pre-set times.					
PopupFolder 2.0	£46	87%	MF35	Softline	0181 401 1234
Hierarchical folder menus up to 16 levels deep both in the Finder and in **Find** and **Save** dialogue boxes. Paradise!					
RAM Charger 3.0	£18	93%	MF47	Syncronys	00 1 213 340 4100
MF CLASSIC Frees up megabytes of precious RAM, runs on any Mac, and is compatible with Virtual Memory.					
RAM Doubler 2	£71	92%	MF43	CU	0181 200 8282
MF CLASSIC If you have a modern Mac, *RAM Doubler* is so essential a utility you'll wonder how you coped without it.					

Graphics

From image editing to professional illustration to 3D design and raytracing, here's our pick of the top Macintosh graphics packages.

Name	Price	Rating	Reviewed	Contact	Telephone
Bryce 2	£234	93%	MF38	Principal	01706 832000
MF CLASSIC 3D landscape creation tool that's more versatile than its predecessor and can create indoor scenes too.					
Canvas 5	£469	86%	MF49	Principal	01756 704444
A solid and well-featured all-rounder with image editing, drawing and page layout tools in one package.					
CorelDraw 6	£465	91%	MF44	Corel	0800 973189
MF CLASSIC *CorelDraw* is great as long as you have a PowerMac and plenty of RAM and hard disk space.					
Dabbler 2	£59	90%	MF35	CU	0181 358 5857
MF CLASSIC Natural media painting program for those awed by multi-layered dialogues and complex options.					
Detailer	£328	85%	MF46	Principal	01756 704040
Detailer is powerful, fast and satisfies a genuine need for a form of direct 3D image mapping every artist can understand.					

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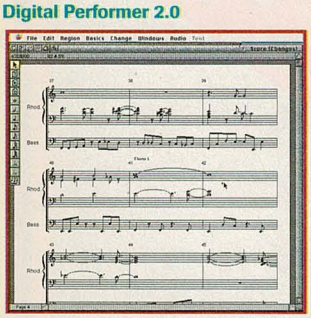
Product news continued

following its success in 1996. The basic **ArtPad II/Dabbler 2.0SE** is now **£135,** down from the original **£158.** The savings are even more impressive in the more professional end of the range: the **UltraPad A2,** which was £2,114, is now **£1,761.** Included with the more modest tablets is an **Ultra-Pen Eraser,** a slim biro-like stylus that deletes text and can be used for art effects. The more professional tablets are bundled with an **UltraPoint Ergonomic 4** or 16-button puck. This moves freely and the buttons can be programmed to perform specific functions. It has been ergonomically designed for comfort, making it useful for graphics professionals in particular.

- **ArtPad II** with *Dabbler 2.0 SE* and UltraPen Eraser
New price **£135** (was £158)
- **UltraPad A5** with UltraPen Eraser
New price **£280** (was £387)
- **UltraPad A4** with UltraPen Eraser
New price **£399** (was £540)
- **UltraPad A3** with UltraPen Eraser or UltraPoint Ergonomic
New price **£704** (was £868)
- **UltraPad A3 Electrostatic** with UltraPen Eraser or UltraPoint Ergonomic
New price **£821** (was £986)
- **UltraPad A2** with UltraPen Eraser or UltraPoint Ergonomic
New price **£1,761** (was £2,114)

Contact **Computers Unlimited** on **0181 358 5857** or **Art Systems** on **01159 431 404** for more details.

Digital Performer 2.0

A major upgrade of MIDI-sequencing and digital audio recording software has been released by **Mark of the Unicorn.** ***Digital Performer 2.0*** will bring you one step closer to mastering music. The upgrade has optimum speed and performance capabilities and a host of new features, including "draft" quality conversion so you can instantly play back your created audio (at the correct pitch), and unlimited multiple mixdowns which enable you to remix any sequence with instant recall. The Tracks window now shows a bird's-eye view of MIDI and audio tracks which helps you to see the form of the music being created. If you already own ***Digital Performer 1.7***, this upgrade will cost **£109 –** but for the whole program, expect to pay **£599.** For details call **MusicTrack** on **01462 812010.**

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Name	Price	Rating	Reviewed	Contact	Telephone
FreeHand 7	£529	82%	MF47	CU	0181 358 5857
A significant improvement on the previous version, this illustration giant is well worth upgrading to.					
Illustrator 6	£376	80%	MF37	Adobe	0181 606 4000
The latest version of this vector-based professional illustration package is nearly on a par with its great rival *FreeHand.*					
Infini-D 3.5	£469	85%	MF42	Gomark	0171 731 7930
3D modelling, rendering and animation package that's easy to use but produces rather crude and mechanical results.					
Kai's Power Goo	£58	90%	MF41	Principal	01706 832000
MF CLASSIC With many professional-level tools, *Goo* might be the best fun you'll have with a graphics package.					
Painter 4	£469	91%	MF35	CU	0181 358 5857
MF CLASSIC Blends traditional painting tools and media with mouse pointers and Bézier curves.					
PhotoDeluxe	£88	85%	MF39	Adobe	0181 606 4000
Innovative and powerful photo manipulation package at a bargain price – if you've got the hardware needed to run it.					
Photoshop 4.0	£635	92%	MF47	Adobe	0181 606 4000
MF CLASSIC The world's most popular image editor gets even better with a careful rethink of existing capabilities.					
Expression	£151.58	90%	MF49	Principal	01706 704444
MF CLASSIC Natural media drawing program won't replace FreeHand, but it's useful, fun and good value.					
3D World 2.0	£116	78%	MF45	Microspot	01622 687771
A powerful, great value, basic 3D package – a good toy and superb learning tool, but nothing more sophisticated.					
xRes 3	£645	91%	MF38	CU	0181 358 5857
MF CLASSIC Heavyweight graphics package aimed at a market beyond *Photoshop.* We reviewed xRes 2.					

Video and animation

Once restricted to profesional studios, video creativty is coming into its own on the Mac, especially as you can now broadcast through the World Wide Web and QuickTime.

Name	Price	Rating	Reviewed	Contact	Telephone
After Effects 3.0	£600	83%	MF45	Adobe	0131 451 6888
Great features make *After Effects* a very cost-effective way to give your movies a professional touch.					
Amazing Animation	£58	90%	MF26	Claris	0181 756 0101
MF CLASSIC Animation tool aimed at kids and which comes with a stock of characters to animate.					
Animation Works	£153	85%	MF26	Gold Disk	01734 814230
Aimed more at youngsters than professionals, but still needs drawing skills and an understanding of cel animation.					
Elastic Reality 1.21	£293	90%	MF26	Softline	0181 401 1234
MF CLASSIC Heavyweight morphing application that's more sophisticated than its cheaper rival *Morph.*					
Final Effects 3	£151	87%	MF45	Principal Distribution	01756 704000
The additional cost of *Final Effects* is well worthwhile, as this collection of plug-ins takes After Effects to new heights.					
Morph 2.5	£117	84%	MF26	Softline	0181 401 1234
Powerful and enjoyable morphing program at an affordable price. Easy to use, although lacking in professional features.					
Premiere 4.2	£586	90%	MF21	Adobe	0181 606 4000
MF CLASSIC The pro's choice, this video editing suite offers sophisticated features. We reviewed *Premiere 4.0.*					
PROmotion	£149	80%	MF26	Gomark	0171 731 7930
Animation program for serious or professional users, which requires skill and know-how. Can output to videotape.					

Music and audio

The Macintosh is one of the mainstays of the professional music industry, and boasts a wealth of high-quality software for MIDI, sequencing, scorewriting, sound editing, and direct-to-disk recording.

Name	Price	Rating	Reviewed	Contact	Telephone
Cubase VST	£329	94%	MF39	TSC	0171 258 3454
MF CLASSIC This sequencer is packed with features, easy to use and great value.					
Deck II v2.5	£410	84%	MF38	CU	0181 358 5857
Direct-to-disk recording program that also has many uses for multimedia authors and post-production studios.					
FreeStyle	£149	90%	MF22	Music Track	01462 733310
MF CLASSIC An excellent introduction to sequencing with some powerful and unique features.					
Logic 2.5	£649	92%	MF31	Sound Technology	01462 480 500
MF CLASSIC A high-powered sequencing package with some unique processing and arranging features.					
MusicTime	£100	90%	MF27	Arbiter	0181 202 1199
MF CLASSIC An excellent budget-priced scorewriter that can use QuickTime's Musical Instruments Extension.					
Overture	£234	90%	MF24	MCMXCIX	0171 723 7221
MF CLASSIC Application for converting your MIDI compositions into printed scores in musical notation.					
Session 2	£175	89%	MF33	Digidesign UK	0800 898 331
Affordable direct-to-disk recording program. You miss out on some features, but it's still up to professional use.					
Visual Arranger	£39	90%	MF26	Yamaha	01908 366700
MF CLASSIC MIDI application for those who want to create a lot of music for relatively few musical skills.					

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Children's Multimedia Dictionary	£30-95	Gabriel Knight 2	£39-45
Incredible Amazing Dictionary	£23-95	System Shock	£33-95
PB Bear's Birthday Party	£23-95	Phantasmagoria	£34-45
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Mac IIci	4/80 cpu	£200
"Many people regard the Mac IIci as the peak of evolution of the 68030 Mac II range... Today still a desirable second-hand bargain." – MacFormat January 1997		
Mac IIvx	8/240 w. Quad CD cpu	£450
Quadra 610	8/500 cpu	£450
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Quadra 650	8/500 cpu	£575
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Product news continued

Stanley's Sticker Stories

A new CD-ROM from **Iona, *Stanley's Sticker Stories*** is educational software for children aged 3 – 7 years. The program consists of bright background scenes, cartoon-style characters and various sound effects for children to create individual stories, signs or letters. As your kids progress with the CD-ROM, they'll get more creative: they'll learn how to attach music and text to pages, how to animate characters, and how to record their own narration, songs and sound effects using a microphone. The multimedia program costs just **£19.95** and you can get a copy by contacting Iona on **0181 296 9454.**

Fashionable digital photos

A new range of digital camera accessories for the **Apple QuickTake 100** and **150** and for the **Epson Photo PC** digital camera has been launched by **DC Pro.** These include: a close-up lens set, telephoto, wide and super wide-angle conversion lenses, tripods, warming filter, UV protector, lens-cleaning kit and systems case. Easy to fit, these extras have been designed to boost performance without reducing definition. Prices range from **£6.99** for a lens-cleaning kit, to nearly **£90** for a super wide-angle conversion kit. More details are available from **DC Pro's** Web site at **http://www.dc-pro.com/dcpro/** Or call direct on **0800 454571.**

Microvitec

The **Pro-Scan 17SX** monitor from **Microvitec** has an impressive high-specification display which operates to 1,600 x 1,200 resolutions, at a refresh rate of 85Hz. It also has a high-res microfilter CRT to improve brightness and contrast ratios, making the Pro-Scan 17SX a monitor for professionals. It's available now for **£687.** Give **Microvitec** a call on **01274 390011** for more information. You can also take a look at this product at the **Microvitec** Web site at **http://www.microvitecplc.com/**

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Publishing and electronic media

Publishing today is about far more than print: you can also produce material as multimedia for CD-ROM or the Web, or use an HTML editor to create Web pages from scratch.

Name	Price	Rating	Reviewed	Contact	Telephone
Astound	£222	91%	MF36	Gold Disk	01734 814230
MF CLASSIC A top presentation tool which makes handling quite complex actions easy.					
Authorware Academic	£150	95%	MF43	Prentice Hall	01442 257115
MF CLASSIC Icon-based multimedia creation at its finest, this power-packed program is for education only.					
BBEdit 4	£112	85%	MF47	Full Moon Software	01628 660242
This Web authoring tool is definitely not for beginners, but it's very powerful in an expert's hands.					
BeyondPress 2.0	£570	85%	MF40	XChange	0171 637 2966
Easy to use *XPress* XTension for converting *XPress* pages into HTML. No support for font tags or frames, though.					
Digital Chisel HTML 2.1	$159	89%	MF36	Pierian Spring	00 1 800 472 8578
Powerful entry-level educational package with a simple interface. We reviewed *Digital Chisel 2.0.*					
Director 5.0	£1,174	85%	MF41	CU	0181 358 5857
A sound upgrade to the industry leader for media authoring, which irons out many shortcomings. It's easier to use, too.					
Director Academic	£46	95%	MF43	Prentice Hall	01442 257115
MF CLASSIC De-facto standard for multimedia creation in a cut-down version – for education only.					
Home Page 1.0	£81	91%	MF47	Claris	0181 756 0101
MF CLASSIC Claris's Web page maker is good for beginners but still offers you room to grow.					
HyperCard 2.3	£95	79%	MF36	Apple	0800 127753
Authoring bundle built uneasily around the ageing *HyperCard.* With it, nothing is impossible, but few things are easy.					
HyperStudio 3.0	£121	88%	MF36	TAG Developments	01474 357350
Practical and powerful tool aimed more at education than multimedia authors per se. More text styling tools are needed.					
PageMaker 6	£605	91%	MF32	Adobe	0181 606 4000
MF CLASSIC It can do everything *QuarkXPress* can do at about half the price. Layout and design is clean and simple.					
PageMill 2.0	£116	90%	MF47	Adobe	0181 606 4000
MF CLASSIC A powerful, easy-to-use program with excellent support for advanced features like frames.					
QuarkImmedia	£1,169	91%	MF48	XChange	0171 637 2966
MF CLASSIC This XTension for *QuarkXPress* adds easy-to-use multimedia and Internet production features.					
QuarkXPress 3.32	£1,169	88%	MF48	CU	0181 358 5857
The market-leading DTP package costs plenty, but it's robust, powerful and flexible, right up to that final deadline.					
UniQorn 1.01	£1,052	80%	MF40	Principal	01706 832000
QuickDraw GX DTP application that does things *XPress* and *PageMaker* can only dream of. Needs hardware power,					

Multimedia CD-ROMs

The invention of the CD-ROM has created a whole multimedia publishing industry turning out educational, reference and leisure titles by the score.

Name	Price	Rating	Reviewed	Contact	Telephone
ABC of Animals	£40	90%	MF47	Creative Wonders	01753 549442
MF CLASSIC Covering a wide range of animals across the globe, this CD is educational and a well-designed treat.					
Solar System Explorer	£40	83%	MF49	Maris Multimedia	0171 488 1566
Daunting at first, but it soon .					
Cinemania 97	£30	92%	MF47	Microsoft	0345 002000
MF CLASSIC If you have a CD-ROM drive, £30 and even the slightest if interests in cinema, this is an essential buy.					
Encarta 96	£50	83%	MF42	Microsoft	01345 002000
Microsoft's definitive multimedia encyclopedia is bang up-to-date, but the Mac implementation is flawed.					
History of the World	£40	89%	MF38	Dorling Kindersley	0171 753 3488
More flashy and inspirational than in-depth and authoritative. Oozes quality, but built for browsing rather than research.					
Makers of the 20th Century	£45	89%	MF41	News Multimedia	01525 852 813
200 personalities of the 20th Century are examined and explained in a well-presented and often intriguing CD.					
Music Central 97	£30	85%	MF47	Microsoft	0345 002000
A well-researched and thorough delve into the world of popular music, even if some of the entries do seem quite obscure.					
The Mystery of Magritte	£40	90%	MF46	MIP	0171 881 8000
MF CLASSIC A radical look at one of the world's greatest artists. It'll make you question your very existence.					
Picasso	£40	88%	MF46	Grolier Interactive	01865 264000
An educational and entertaining trawl through the life and works of one of the world's greatest artists.					
RedShift 2	£50	92%	MF32	Maris Multimedia	0171 488 1566
MF CLASSIC Restrained but magnificent exploration of the universe using sound astronomic principles.					
The Way Things Work 2.0	£40	88%	MF45	Dorling Kindersley	0171 753 3488
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Product news continued

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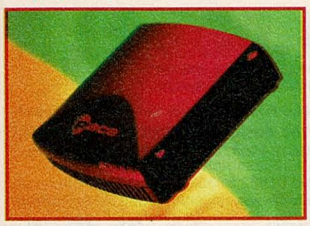

The **Pace Microlin modem** is the first data and fax modem from **PMC Consumer Electronics.** Mac software and cables are provided, and this nifty unit can support up to a speedy 33.6 Kbps. One notable feature is UK Caller ID, which enables you to access a caller's number. A free Internet trial is also included, and all for **£175.** Contact **PMC** on **01990 561001** or take a look at the **Pace** home page at **http://www.pacecom.co.uk/**

Breakthrough languages

CD-ROMs can now help you to learn a new language. Together with language-learning publishers **Breakthrough**, **Macmillan Interactive** has produced two complete courses for learning French and Spanish. The CD-ROMs include language and grammar structures, as well as photographs, videoclips and recorded conversations. There's even a recording facility, so you can play back your conversations and judge your accent. They cost **£69** each – call **Macmillan** on **0171 881 8304** or visit its Web site at **http://www.macmillan.co.uk/**

User groups

User groups are more or less informal clubs of people with a common interest – in this case, the Mac. If you don't have any Mac-owning friends, they are a great source of information, advice and help. Some groups simply meet every now and again; others are more structured and may even publish regular newsletters.

UK User Group Council list

The UK User Group Council maintains a list of the Mac user groups which have registered with it. If you wish to contact the council, call John McKnight on 0181 314 1753.

Local groups

- **Aston University Mac UG**: Birmingham area. Contact Ray Tier on 0121 359 3611
- **Berkshire Mac UG**: contact Ian Burn on 01734 813
- **Blackburn Mac UG**: contact Roger Moreton on 01254 670043
- **Cambridge Apple UG**: contact Ian Archibald on 01223 311157
- **Cancer Research/RMH UG**: contact Raymond Henry on 0181 643 8901
- **Cumbria Mac user group**: Monthly

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Multimedia for kids

How do you keep the kids entertained on a wet Sunday afternoon in November? Multimedia CD-ROMs for kids can entertain, occupy and educate all at the same time.

Name	Price	Rating	Reviewed	Contact	Telephone
Adiboo	£28	95%	MF46	Sierra	0118 920 9111
MF CLASSIC A fantastic learning adventure, packed full of activities and fun, keeping your kids fascinated for hours.					
Adventures of Peter Rabbit	£30	88%	MF43	Mindscape	01444 246333
A rare and challenging adventure game which will educate and captivate your kids.					
Counterfeit Collaborator	£28	90%	MF35	Sierra	0118 920 9100
MF CLASSIC A genuinely intriguing mystery forms the heart of this Playtoon CD.					
Darby the Dragon	£20	89%	MF44	Brøderbund	01429 273029
A rare and challenging adventure game which will educate and captivate your kids.					
The Greatest Toyshop on Earth	£30	88%	MF32	Omnimedia	0181 974 6766
A brilliantly entertaining set of kids' toys in a comfortingly British environment. Something to keep coming back to.					
KidWorks Deluxe	£35	88%	MF43	ABLAC	01626 332233
An excellent package which encourages children to get involved in all aspects of story-making.					
Logical Journey of the Zoombinis	£30	96%	MF41	Brøderbund	01429 273029
MF CLASSIC A well-designed course in mathematical logic for kids that's disguised as a superb-looking and fun game.					
The Lost Mind of Dr Brain	£28	92%	MF43	Sierra	01734 303322
MF CLASSIC Challenging, lots of fun and well suited to the intended age group, *Dr Brain* is addictive and has longevity.					
Maths Workshop	£30	90%	MF41	Brøderbund	01429 273029
MF CLASSIC Teaches maths in the broadest possible sense, with wonderful-looking activities and a good manual.					
My First Amazing World Explorer	£30	89%	MF41	Dorling Kindersley	0171 753 3488
Interactive atlas that's pitched at just the right level for younger children, showing the world as a diverse and living thing.					
Uncle Archibald	£28	90%	MF35	Sierra	0118 920 9100
MF CLASSIC Another excellent Playtoon about imaginary monsters that come to life. Slapstick chaos is the result.					
Word Stuff	£20	85%	MF39	Eidos Interactive	0121 606 1800
Teaches English and explains various everyday situations. An excellent blend of entertainment and real educational value.					

Games

As a games machine, the Macintosh rivals both the PC and the plethora of whizz-bang games consoles flooding the market. The best games tend to be those that involve brains as well as reflexes.

Name	Price	Rating	Reviewed	Contact	Telephone
Actua Soccer	£40	90%	MF46	Gremlin	0114 275 3423
MF CLASSIC A beautiful game about the beautiful game, and a superb debut performance for football on the Mac.					
Apache Longbow	£45	92%	MF41	Digital Integration	01276 684959
MF CLASSIC 3D Gouraud-shaded flight sim with real class and some fairly hefty hardware requirements.					
Caesar II	£35	85%	MF48	Sierra	0118 920 9100
An excellent, finely balanced *SimCity*-style title – absorbing and beautiful.					
Close Combat	£45	89%	MF48	Microsoft	0345 002000
A realistic war game with elements that will appeal to both tacticians and action junkies alike.					
HIND	£45	88%	MF49	Digital Integration	01276 684959
This companion to Apache Longbow puts you in control of a Russian craft – a solid and engaging flight sim.					
Day of the Tentacle	£40	94%	MF33	Virgin Int. Ent.	0171 368 2266
MF CLASSIC You'll love it. You'll hate it. It's funny, it's involving and the cartoons are quite superb.					
Doom 2: Hell on Earth	£45	90%	MF31	Virgin Int. Ent.	0171 368 2266
MF CLASSIC The blood-spattered violence *Doom* is famous for hides some quite involving puzzle-solving.					
F/A-18 Hornet 2	£69	93%	MF36	Softline	0181 401 1234
MF CLASSIC Realistic, absorbing and fun – an instant classic with imaginative and interesting missions.					
Gabriel Knight: The Beast Within	£45	84%	MF42	Sierra	0118 920 9100
Interactive movie/adventure game that for once successfully blends video footage with excellent gameplay.					
IndyCar Racing II	£17	94%	MF42	Sierra	0118 920 9100
MF CLASSIC Spectacular simulation at its finest, and at a real bargain price. Stunning graphics and attention to detail.					
Marathon 2	£65	95%	MF35	Softline	0181 401 1234
MF CLASSIC A huge game task, addictive gameplay and excellent graphics and sound. What more could you ask for?					
MechWarrior 2	£50	89%	MF43	Activision	0181 742 9400
The controls take some getting used to, but *MechWarrior 2* is too addictive to let that worry you for long.					
Pro Pinball: The Web	£35	90%	MF44	Empire	0181 343 7337
MF CLASSIC The finest pinball simulator ever (full stop).					
WarCraft II	£45	93%	MF45	Zablac Entertainment	01626 332233
MF CLASSIC A delight to look at and, in multi-player mode, as near to perfect as a game of this type has come.					
Worms	£30	89%	MF45	Team 17	01924 271637
Simple concept with almost endless tactical possibilities. Great multi-player game but let down by a clumsy interface.					

How to contact MACFORMAT

Editorial enquiries
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Sending us a letter?
Send your letters to the address above – the shorter they are, the better their chances of being printed. E-mail letters are welcome too – please put "Apple Talk" in the subject line. If you'd like a letter included in the Readers' Corner on our Cover CD-ROM, make sure it contains no defamation or obscenity, then send it in as a *SimpleText* document (so anyone can read it!) on a disk marked "MACFORMAT Readers' Corner". Make sure you include your name and address, and note that we can't return your disk.

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Problems or questions?
■ Sorry, but we cannot give personal help with technical problems or buying advice, whether by phone, fax or e-mail. If you have an urgent problem with a new Mac, try the Apple Assistance Centre on 01753 615999.

■ We try to make ourselves available to answer Cover Disc related and general reader calls on Wednesday afternoons from 2pm to 6pm, so please ring then if you have to. We cannot answer technical queries over the phone – sorry! We hope you'll understand that because we receive so much correspondence we can't promise to reply to faxes, e-mail or mail personally, even if you include an SAE. However, rest assured that we do read all correspondence we receive.

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Winners

Announcing the lucky winners of recent competitions...

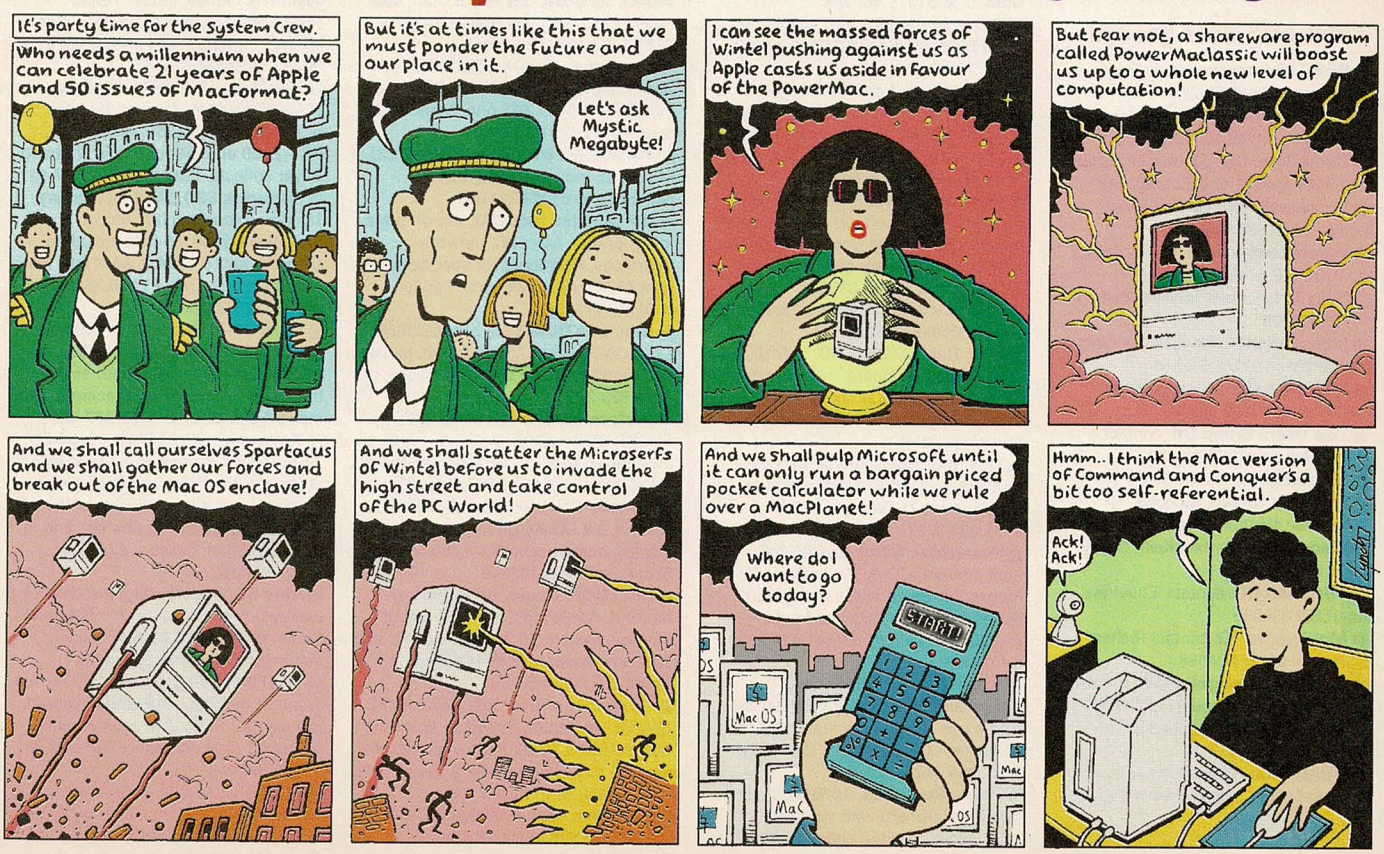
Back in MACFORMAT 44, we gave you the chance to win one of ten Tomy Comfy-Keyboards, each worth about £70. These robust activity-centre-like keyboards are designed for kids as young as one year old, and come with two interactive CD-ROM titles.

The ten lucky winners are: Mrs P Guppy of Shaftesbury, Dorset; Mr R Picton of Durham; Mrs M Skouroliakou of Levadi in Greece; Mr R Randall of London SE16; Mr J Maeckelbergh from Antwerp, Belgium; Mr M Dottori of Cardif; Mrs M Habermel of Walton-on-Thames; Dr M Owen of Leicester; Mr L Watkins of Wokingham and Mr T Roper of Edgeware, Middlesex.

Also in MACFORMAT 44, we had three eight-speed CD-ROM drives from Performance Direct up for grabs, worth over £250 each. The winners drawn from the hat are Mr L Watts of Folkestone, Kent, Martyn Hoskins of Bristol, and Ms T Clifford of Leighton Buzzard, Bedfordshire. Congratulations to all! **MF**

The Classic System Crew

by Bob Lynch


It's party time for the System Crew.
Who needs a millennium when we can celebrate 21 years of Apple and 50 issues of MacFormat?
But it's at times like this that we must ponder the Future and our place in it.
Let's ask Mystic Megabyte!
I can see the massed forces of Wintel pushing against us as Apple casts us aside in favour of the PowerMac.
But fear not, a shareware program called PowerMaclassic will boost us up to a whole new level of computation!
And we shall call ourselves Spartacus and we shall gather our forces and break out of the Mac OS enclave!
And we shall scatter the Microserfs of Wintel before us to invade the high street and take control of the PC World!
And we shall pulp Microsoft until it can only run a bargain priced pocket calculator while we rule over a MacPlanet!
Where do I want to go today?
START
Mac OS
Hmm... I think the Mac version of Command and Conquer's a bit too self-referential.
Ack! Ack!

User Groups continued

meetings, newsletter, training (at reasonable rates). Call Linda Linsell, 01229 828422 or send SAE c/o 10 Athol Street, Barrow-in-Furness, Cumbria LA14 2QT.

- **Gateway UG**: Norfolk area. Contact Verne Anderson on 01638 513000
- **Glasgow Mac UG**: contact Stephen Broadfoot on 0141 339 6646
- **London Mac UG**: contact John McKnight on 0181 314 1753
- **Mac Assist**: Cardiff and district. Contact Nigel Arrighi on 01222 224682
- **Midapple**: West Midlands. Contact William Watson on 01384 277921
- **Midland Mac UG**: Worcestershire. Contact Ivan Knezovich on 01299 402631
- **North West Apple CC**: contact George Evans on 01270 583714
- **Norwich Mac UG**: Dave Gudgeon on 01508 492938
- **Nottingham Mac UG**: contact David Nicholson-Cole on 0115 945 5077 or 0115 945 5444
- **Poole Mac UG**: contact Bob Lister on 01202 684441
- **S E Essex Mac UG**: contact Michael Foy on 01702 468062
- **Southern Mac UG**: Salisbury area. contact Roger Ford on 01722 780102
- **Southwest Mac UG**: contact John Elver on 01272 693119
- **Staffordshire Poly Mac UG**: contact Mark Stiles on 01785 52331
- **Sussex UG**: Hastings & E Sussex. Contact Garry Nevin on 01424 714110
- **West Midlands UG**: contact Danny Torbica on 01902 336172
- **Yorks & Humberside Mac UG**: contact David Vardy on 01423 358853

Thematic user groups

- **BAPC (Printers)**: contact Derek House on 01228 513621
- **Christian Mac UG**: contact Paul Wareing on 01789 490153
- **Corel Draw UG**: contact Jill Foster on 01509 415101 or 01509 620442
- **Developers UG**: contact John French on 01895 672654
- **HebreWare**: contact Mendy Scharf on 0181 802 6143
- **Helix UG**: contact John Sandell on 01763 273379
- **Independent School UG**: contact Ian Carter on 01252 512151
- **LAW Mac UG**: contact Charles Christian on 01379 88518
- **Lisa Users Group UK**: contact Sheila Bell on 01367 710453
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- **MacLaw**: contact Nicholas McFarlane-Watt on 01865 784777
- **Medical UG**: contact Keith Davey on 01836 348284
- **Microsoft UG**: contact 'Enquiries' on 01252 834995
- **Multimedia UG**: contact Richard Hurley on 01273 834588
- **Newton MessagePad West Yorks User Group**: David on 0113 278 0691
- **PageMaker UG**: contact David Foster on 01509 415101
- **QUAD Club (*QuarkXPress*)**: contact Philip Caplan on 0181 523 4233

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- **Apple SCSI cable –** £6. Terminator – £5. Centronics cable – £7. Keyboard cable – £5. Printer cable – £6. MacPlus mouse – £10. Floppy drive – £35. ☎ 0181 548 0403
- **PowerMac 8100/80**, 16/1GB/CD, 20-inch Radius Intellicolour monitor, System 7.5.1, keyboard, mouse – £2,250 ono. Scott ☎ 0113 288 3668 (daytime)
- **MacPlus** 1Mb, keyboard, mouse, external floppy. Call with offers ☎ 0121 693 8800 (daytime)
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- **LC475 8/160,** monitor, keyboard and mouse. CD300, light home use only. System 7.5. Martyn – £600 ☎ 0171 823 3723
- **PowerMac 6200, 24/500Mb,** 14-inch monitor, CD-ROM, keyboard and mouse, boxed and little used. Many extras, including CDs and books – £1,200 ono. Callum ☎ 0141 427 7318 for details.
- **Apple Mac oneScanner** (greyscale) and StyleWriter II printer. Home use only. All manuals, cables, software – £300 for both. Charles ☎ 0181 969 4425
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- **Mac Plus**, complete with keyboard and mouse – £100. Mac Classic 4/fl with keyboard and mouse – £125. ☎ 01582 570167
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- **Mac IICX**, mouse, extended keyboard II, Apple high-res RGB colour monitor, System 7.5.3, cables, disks, etc, vgc. Any reasonable offer accepted. Jamie ☎ 01332 850426
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- **LC 4/40**, keyboard, mouse, 12-inch colour monitor £265. IIVI 8/80 keyboard, mouse, 14-inch colour monitor – £385. Slough, Brian ☎ 01753 643309
- **Mac IICX, 8/80,** keyboard, mouse, 14-inch Trinitron monitor, *RAM Doubler,* Epson Stylus colour printer, all for £650. Good condition. Darren ☎ 01234 212090
- **Performa 6200, 64/800,** 4 x CD, 15-inch Apple MS monitor with 8 CD-ROMs, *MicroSoft Office 4.2.1*, manuals, disks included. £1,400. Cumbria, Linda ☎ 01229 828422
- **Quadra 605** (UK LC475), 8/80 Trinitron colour monitor, Apple CD-ROM with all cables and manuals, including desk. After home use only, in excellent condition – £500. ☎ 01634 575431
- **US Robotics Sportster** 28.8 external Mac and fax modem with Mac COM centre, lead and manuals – £80. Jock ☎ 01422 249764 (after 6pm)
- **PowerMac 7200/90** CPU only, 16Mb RAM, 1Gb H/D, 4 x CD-ROM. All software available with unit. Total value – £4,300, will accept £1,800 ono. ☎ 01359 258369
- **MacIICX, 8/230,** eight-bit video card, loads of software loaded, keyboard, mouse – £250. Apple Performa communications kit, 14.4Kbs internal modem – £75 and postage. Boxed. ☎ 01689 811142
- **MacPlus**, 1MB RAM and ImageWriter II with sheetfeeder. No hard disk or mouse, hence £250. Also Amstrad PC – £150 or £250 for whole shebang. Buyer collects. Pascal ☎ 0121 427 4316
- **Performa 630**, 24Mb of memory, 15-inch colour monitor, colour StyleWriter 2400, 45 CDs including *ClarisWorks 3.0, PGA 3, Myst* and *Wing Commander 3*. Only £1,200. ☎ Ireland (00 353) 23 33753
- **Sony 17-inch Trinitron monitor**, Multiscan 17SFII – £450, Apple StyleWriter 1200 – £60. Both as new, boxed with manuals and receipts. Nine months old. Mark ☎ 0181 567 6231
- **PowerMac 7500/100**, 40/1.2 Gb, 17-inch Trinitron monitor, CD-ROM, Zip Drive and six disks, keyboard, mouse, speakers, games, publishing software – *Photoshop* etc, six months old, and in mint condition, boxed – £2,500. ☎ 01442 236277
- **Mac SE**, *ClarisWorks 3* installed plus *FileMaker Pro 3*, System 7 – £200 ono. Simon ☎ 0151 670 1115 or e-mail: simon.jones@netmatters.co.uk
- **LC475 8/250,** System 7.5.1, 14-inch Trinitron monitor, extended keyboard, mouse, CD-ROM drive, some games including *Dark Forces* – £750 ono. ☎ 01664 822648
- **LC475** 12/160, 14-inch monitor, keyboard and mouse including System disks – £450 ono. Excellent condition.

Some software available. Interested? ☎ 0191 482 3313

■ **Performa 630/350/CD**, 20Mb RAM, 15-inch Apple monitor, extended keyboard, System 7.5.3, loads of software, excellent condition, bargain – £950 or without monitor £700. Alex ☎ 01691 772311

■ **Syquest 270Mb drive**, with 3 x 270Mb, 1 x 105Mb cartridges, SCSI cable, driver software, hardly used – £220 ono. Steve ☎ 0171 238 4006 (days) or 01732 740521 (eves)

■ **Macintosh SE** 2.5Mb memory, 40Mb hard disk, manual, excellent condition – £140. ☎ 01825 724093

■ **Mac Centris 610**, 8Mb RAM, keyboard, mouse and mat. Good first-buy computer – £400 ono, inc delivery. ☎ 0171 708 3343

Software for sale

■ ***Full Throttle* –** £25, *Civilization* – £20, *Theme Park* (disk) – £15, *Colour Vette* – £15, Also *Another World, Armour Alley* – both £10. All boxed – as new. ☎ 01425 616600 (eve)

■ **Macromedia Graphics Studio**, including *Freehand 5.5, Extreme 3D 1.0, XRes 2.0, Fontographer 4.1*. Unregistered, brand-new CD for £200. Lionel ☎ 0958 332764 or 0181 406 3022

■ ***Now Utilities 5.0.1* –** £20. *Now Utilities 6.0* CD-ROM – £30. *Popup-Folder* unregistered, boxed – £25. Gerry ☎ 01232 763858

■ ***Millies Math House***, *Reader Rabbit 1*, original disks, both boxed with manuals – £10 each or swap. ☎ 01932 253206

■ ***Retrospect 2.1***, new unopened, industry standard back-up archive, resumé, restore, compress and scripting software. PowerMac compatible. Will accept £50. ☎ 0181 518 7311

■ ***Speed* and *RAM Doubler* –** £50. *Discworld* plus Official Strategy Guide – £50. Deal, Paul ☎ 01304 373958

■ **Micronet *Diskworks***, unregistered, unopened – £70 ono. Drive Management software ☎ 01284 725609

■ **Adobe *PageMaker 5.0a***, boxed with full documentation – £130. ☎ 0131 447 8624

■ ***WarCraft* CD –** £20, *Worms* CD – £21, *Prince of Persia 1 & 2* CD – £10, *Ultimate Doom* CD – £20 or all for £60. ☎ 01328 862712

■ ***Bryce 2***, excellent 3D landscapes etc – £120. CD disks and manual included, still boxed. Contact Darren ☎ 01234 212090

■ ***PowerPrint*** and cable to connect Mac to non-Mac printers (not for PowerPC with Geoport) – £30. ☎ 01903 762846

Wanted

■ ***Minicad* version 4.0/5.0** with all discs and manual required for pensioners retirement project. Phone anytime. Elson ☎ 01372 741399

■ ***Painter 2.0*** manuals or tutorials. Have you upgraded and now have these surplus to your requirements? ☎ 01905 619474

■ **Power Unit for Mac IIci/ IIcx** for charity. Will pay a sensible price. ☎ 0181 518 7311

■ **QuickTake camera**, PowerBook accessories, battery charger, SCSI video cable, external floppy drive, mini dock for 540/2300. Dianne ☎ 0171 254 2426

■ **StyleWriter II** inkjet Printer. ☎ 01620 892431

■ **Mac LCII motherboard**. E-mail: phillips@enterprise.net or Leamington Spa ☎ 01926 316778

■ ***AutoCad*** for the Mac desperately needed, manual not essential. ☎ 0181 909 1609

■ ***PoliceQuest v3, 4 or 5,*** CD or disk versions. Cash or will swap for *A-Train* or *Pirates Gold* CD. Contact Alex ☎ 0116 284 8587

■ **SyQuest 200Mb drive** wanted. ☎ 01562 824138

■ ***PGA Golf Tour II***. Fair price paid for this great game. ☎ 01606 556461

■ **For Apple Newton**: modem mains adaptor and AvailWork (card preferably) ASAP. Soft PC, non-power Mac version (Performa compatible) Chris ☎ 01236 734707 (after 5pm)

■ ***Time Life Astrology* CD-ROM** (Mac). Urgent. ☎ 01253 701085

■ **KPT vector effects**, vgc. Sheffield, Jonathan ☎ 01226 764844

Swap shop

■ ***MicroSoft Office v 4.2.1*** preferably on CD-Rom – swap for *Claris Impact 2.0* and *MathCad 3.1*. Bob ☎ 0121 555 5928

■ **David Bowie "Jump"** interactive CD-ROM – includes four full videos and animations, complete, boxed with user guide. Swap for *Omnipage Direct* OCR software. Doug ☎ 01442 390479

■ **Wanted 8500/180/40/1.2Gb,** will trade 7100/16/500 AV with 24 AC display card and Mac ten-jet accelerator (un-used) with cash adjustment. Ken ☎ 0171 720 4352

Books and magazines

■ **MACFORMATS** 37-47 complete with CD – £2 each plus postage. Take all ten for £16 plus postage. Norwich ☎ 01603 451839

Help wanted

■ ***DiscWorld* –** hints and tips. Also, hints and tips wanted for *Indiana Jones* and *Crusade*. Possible swap of hints. Edward ☎ 01228 576 905 (after 5pm)

■ **Sad *Myst* latecomer needs help**. What the heck am I supposed to do? Causing sleepless nights! ☎ Darren (01234) 212090

■ **Copy of HP320 –** Urgently needed, my installer and fonts disks were stolen with my Mac but they left the printer! ☎ 0115 922 6017

Thematic Groups continued

■ **School Mac**: Gloucestershire. Contact Bill Henley on 01453 825422

■ **School Mac UG**: Cambridge. Contact Derek Smith on 01945 584146

■ **Special Needs UG (SNUG)**: contact Geoff Hughes on 01744 24608

■ **The British IIGS UG**: contact Peter Stark on 01223 838231

■ **Young Mac**: call 01795 535472

Others

Advertise your user group here. It need not be registered, but must be a non-commercial user group – just send us your full details and we'll do the rest.

■ **AppleEye BBS** (A FirstClass BBS) Modem numbers: 01234 822180 or 01234 826025. Address: PO Box 162, Oakley, Bedfordshire, MK43 7PA.

■ **Artists archive and news service:** contact The Research Station on 0181 778 6547 (24 hours) 38.4bps plus Web site at **http://www.metamute.co.uk/**

■ **Avid Mac user**, 14 year-old, would like to start user group with other teenagers in Hampshire and Surrey. Contact Kyle Alexander Productions "KAP". Call 01252 24207

■ **MacLin, E-lans MUG**: for info call +46 (0) 141 220330 or e-mail: omar@motala.mail.telia.com

■ **MacHelp**: non-profit helpbank for all Mac problems. Write to : MacHelp – Hermelynster 10, B2610, Wilryk, Belgium.

This listing is a free service for amateur, non-profit-making Mac user groups. MACFORMAT does not endorse or recommend any group and cannot be held responsible for any problems you might suffer as a result of contacting any of the groups listed here.

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Inside: Your Mac knowledge tested, removable storage, *Immedia* review.

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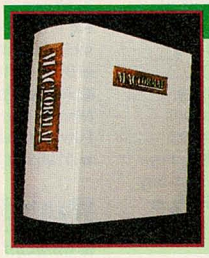

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Disk: *Multimedia Animation, Breaker.*
Inside: Art software; input devices; ten top Mac problems; HTML editors.

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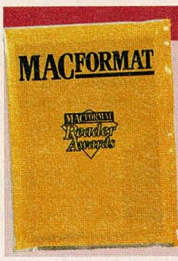

Issue 46 – January 1997

CD-ROM: *Media Paint, Actua Soccer, Marathon Infinity* and *ClickWorks* demos. Full *Internet Explorer 3.0.*
Disk: *Pacman; DiskList; Malph.*
Inside: Best products of 1996; The Mac in '97; PC-compatibility solutions; *Fractal Detailer;* Software RAID.

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Issue 45 – Christmas 1996

Free MacGamer supplement!
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Disk: *QuickEditor, Aaron, Bert.*
Inside: Pros' video secrets; graphics cards; *3D World 2;* PowerBook 1400.

Order codes:
CD-ROM **MFCD45**
HD Disk **MFHD45**

Issue 44 – December 1996

Double-CD special!
CD-ROMs: *Infopedia; IndyCar Racing 2, Planet Earth, Women's Rights,* 3D graphics for the Web, utility demos.
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Inside: Over 75 ways to get more from your Mac; CD drives; *CorelDraw.*

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MACFORMAT

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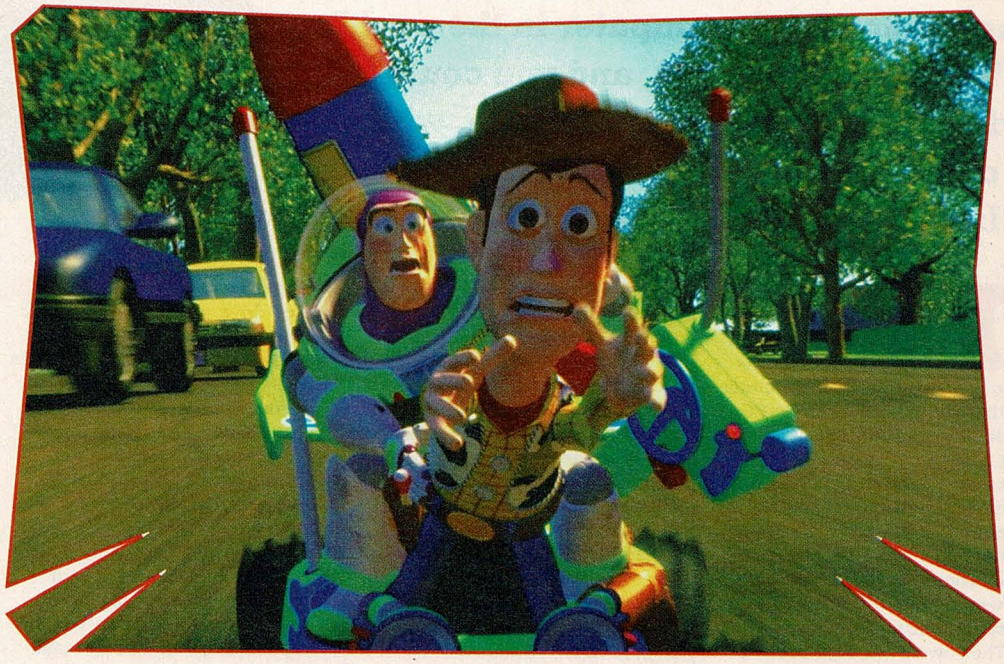
Bright ideas – the Tiny Zone!

Hello and welcome again to Tiny Zone, the section of MACFORMAT that's precision engineered to fit right here. It's easy to criticise when one of Apple's ideas doesn't quite set the world alight, but you only have to look at the record to see how many of its brilliant innovations have hit the mark, and even transformed computing. But things don't always go according to plan. This issue, for instance, we hoped to include on our Cover CD some of Apple's US adverts, including the one that Jon Molyneux refers to in our interview, plus a video shown at Apple's recent dealer roadshow. It's called "Winsongs 95", and it's a mock advert for a disc of songs ("imitations of popular old favourites that preserve the look and feel of the original") including "Stand by Your Manual", "U Can't Use This", "Killing Me Softly with Windows" and "I Want a Mac" by Michael Jackson(!)... But copyright clearance proved impossible. Pity. It's one of the best things Apple's done in years!

Next Issue

Bring them to life!



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Pixar's remarkable Toy Story redefined computer animation, but Macs are being used every day in animation work ranging from Star Wars to The Simpsons. Next issue, learn how it's being done – and discover how to do it yourself with our Cover CD programs!

Plus...

- Minimise conflicts, maximise RAM and trim down your System with our up-to-date *100-page book* guide to what's in your System folder!
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MACFORMAT 51 goes on sale by the third week of May. Reserve your copy with your newsagent now, or turn to page 115 for our special subscription offers!

Win a 240MHz PowerBook!

The most desirable portable computer in the world? Probably.

Apple's new PowerBook 3400c/240 is the fastest notebook computer in the world, it's worth over £5,000, and you could win one here, courtesy of Apple, with a copy of *ClarisWorks Internet Edition*. Plus, Claris has copies of Mac OS 7.6 for six runners-up.

The PowerBook 3400c/240 is not just the fastest and most powerful PowerBook ever, it is also the fastest portable computer in the world. With its PowerPC 603e processor running at a cracking 240MHz, plus built-in Ethernet networking and modem, four-speaker sound system and 12-speed CD-ROM drive, it's not only more than a match for any notebook computer in the world, it's as powerful and fully-featured as a desktop Macintosh, only portable!

The PowerBook 3400 boasts a huge 12.1-inch active-matrix SVGA screen, and with its 1Mb of VRAM (Video RAM) it can display thousands of gorgeous colours on-screen at a resolution of 800 x 600 pixels. With its CD-ROM drive, zoomed video capabilities and four-speaker sound system, it's perfect for multimedia presentations, as well as for working with the most demanding art and graphics applications.

The rechargeable lithium-ion battery pack provides two to four hours of life, even with the CD drive, which is more than enough time to impress anyone sitting next to you on the train.

With a full range of connection ports, a huge 3Gb hard disk, 16Mb of RAM and 256K Level 2 cache, the 3400 has everything a desktop Mac can offer. It also features slots for two Type II PC Card expansion cards or one Type III, and the expansion bay accepts a floppy drive or CD-ROM drive, which can be "hot swapped" (changed without needing to power down the PowerBook). Options will include an additional hard drive, magneto-optical drive, and Zip drives soon.

One of six copies of the latest version of the Mac OS could be yours!

The PowerBook 3400/240 is worth over £5,000, and to celebrate Apple's 21st (and our 50th!) we have one to be won, courtesy of Apple. Claris is generously throwing in a copy of *ClarisWorks 4.0 Internet Edition*, plus copies of the brand new Mac OS 7.6 for six runners-up! Worth £90, this ultra-desirable System upgrade will bring new speed and features to your Mac – see our review on page 44.

All you have to do is answer the three simple questions below and send us your answers by mail or phone – see the "How to enter" box. The specially-extended closing date is Friday 30 May 1997.

The questions

1. What is the clock speed of the processor in the PowerBook 3400c/240?
(a) 603e
(b) 21 years
(c) 240MHz

2. What is the correct term for changing drives in the expansion bay without having to shut down the PowerBook?
(a) Hot swapping
(b) Hot footing
(c) Swap shopping

3. Which of these is *not* included as part of the bundle when you buy Mac OS 7.6?
(a) Finder 7.5.6
(b) LaserWriter 8.4.2 and Desktop Printing 2.0.2
(c) Claris Em@iler

The rules

1. You must send us your entry by midnight on Friday 30 May 1997.
2. Employees of Apple, Claris, Future Publishing and associated companies or their agents, and their families, may not enter.
3. Multiple entries are not allowed.
4. The editor's decision is final, no correspondence will be entered into and there are no cash alternatives. No purchase is necessary. **MF**

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3 (circle one) **(a) (b) (c)**

To help us improve the magazine, please answer the questions below. You will be entered into the competition even if you choose not to answer them.

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